LIFE SCIENCE AREAS OF NATURAL AND SCIENTIFIC INTEREST IN SITE DISTRICT 6-7

A Review and Assessment of Significant Natural Areas in Site District 6-7

September 1984

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Ministry of Natural Resources
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For convenience, this report may be referred to as OFER 8410. It is one of a number of Open File Ecological Reports comprised of reconnaissance surveys and inventories of ecological areas in Ontario.

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PREFACE

In 1977, the Parks and Recreational Areas Programme of the Ontario Ministry of Natural Resources, with special funding approved by Management Board of Cabinet, initiated a provincial survey of natural areas in connection with park system planning. A parallel initiative focused on the identification of geological sites representative of Ontario's earth science diversity. The mandate for these surveys stem from the protection objective of the Ontario Provincial Parks Policy (1978), which is "to protect provincially significant elements of the natural and cultural landscapes of Ontario."

The overall objective of the natural areas survey is to identify a series of ecological areas that comprise the spectrum of natural landscapes, environments and biotic communities in Ontario. This objective issues from a Cabinet endorsed guideline of the 1978 parks policy which recognizes the role of provincial parks in protecting "a system of features representative of Ontario's life science history and diversity". With this aim, technical guidelines help to direct the selection, documentation and evaluation of natural areas throughout the site regions and site districts of the province.

Between 1980 and 1982, evaluations of remnant natural areas were undertaken in the site districts within the Central and Southwestern Regions of the Ministry. Through these assessments, the finest natural areas were chosen to complement natural features already represented within a series of Nature Reserves proposed through an earlier review of the provincial parks and park reserves (Lindsay and Hanna, 1980). In addition, natural areas identified through this survey complement the Candidate Nature Reserves already proposed for the Niagara Escarpment Planning Area (Parks Planning Branch, 1976).

The present report was issued as a draft in 1981 under the title *An Identification and Evaluation of Life Science Candidate Nature Reserves in Site District 6-7*. Now in the final edition, it is one of a series of such reports which have been completed to date and are available as 'Open File Ecological Reports'. The findings of these reports have provided the basis for many of the 'Recommended Provincial Parks' announced by the Minister in June 1983, and the 'Areas of Natural and Scientific Interest' designated in the District Land Use Guidelines also released at that time.

Although evolution of the land use planning process since 1981 has produced new terminology incorporating natural areas, this nomenclature is not used in this report. Rather, natural areas are referred to as either Candidate Nature Reserves or as Significant Sites. This is distinct from the new terminology, as used in the District Land Use Guidelines (OMNR, 1983), which groups natural areas and geological sites as Areas of Natural and Scientific Interest (ANSIs).

According to the District Land Use Guidelines, ANSIs may vary in level of significance. The most significant of these, those referred to as Candidate Nature Reserves in this report make the greatest contribution to the Ministry's protection objective and are listed in the District Land Use Guidelines. ANSIs which contribute to a lesser degree to the provincial protection objective are referred to as Significant Sites in this report and are considered to be at least regionally significant. The policy statement for Areas of Natural and Scientific Interest is appended.

Site district evaluations in the Central and Southwestern Regions of the Ministry were carried out by three biologists — K.M. Lindsay, R. Hanna and R. Klinkenberg. Lindsay coordinated and directed the work, and evaluated Site Districts 6-5, 6-7 and 7-2. Hanna examined Site Districts 6-1, 6-6, 6-8, 6-13, 7-4, and 7-6; Klinkenberg examined Site Districts 7-1 and 6-1. While all three biologists shared common objectives and collaborated in developing evaluation techniques, each undertook field work and evaluation using methods appropriate to their respective site districts.

Each site district report includes an analysis and discussion of the natural features and natural areas of the site district, a discussion of the methodology, recommendations for further work and possible methods of natural areas protection. Check-sheets for Candidate Nature Reserves are appended, as are brief descriptions of other natural areas in the site district.

The information collected during the site district assessments forms the foundation of a provincial natural areas data base. This data base is being updated as new information is obtained. It is an important component for the planning process at district, regional and provincial levels of the Ministry. Readers are invited to add to the data base, either by contributing to studies conducted by the Ministry, or through information contributed to other groups seeking to protect natural areas.

Although site district assessments were designed to identify those natural areas which contribute mainly to the protection objective of the Ministry, this information should prove useful to regional and local governments, conservation authorities and other organizations involved with the identification and protection of significant natural areas. Protection of natural areas may be achieved in several ways, including the purchase of sites by outside agencies. Where natural areas designated as ANSIs occur on public lands managed by the Ministry, it will ensure that the land uses and activities which occur, provide for the protection of identified values. On private lands, the Ministry will, through cooperation with others, attempt to ensure that landowners are aware of the significant features on their properties and seek the owners' cooperation in protecting such features.

ACKNOWLEDGEMENTS

Many people contributed to the preparation of the site district reports. H. J. Featherston, H. Pronk, J. Griffin and G. Rodgers (Parks and Recreational Areas Section, Central Region, OMNR) played a major role in the administration of this project, providing continual and much appreciated logistic and technical support. G. Murphy and E. Martelle (Parks and Recreational Areas Section, Southwestern Region) also contributed substantially to this project. Technical direction for the project came from an informal committee composed of the Parks Coordinators of both regions, H. J. Featherston, G. Murphy and E. Martelle; the Regional Park Planners, G. Rodgers, W. McNab and I. Seddon; and T. J. Beechey (Life Science Coordinator, Parks and Recreational Areas Branch, Queen's Park). Discussions on technical matters with T. J. Beechey, W. McNab and G. Rodgers proved especially valuable.

Throughout the course of this project, P. Terpstra's assistance with background research, data analysis, map preparation and field work and report editing has been invaluable. B. McKay helped with data synthesis and field work during July, August and September, 1980. Discussions with G. Cordiner (Earth Scientist, Central and Southwestern Regions) furnished background information on the physical features of the study area. L. Sajnovic supervised report typing with proficiency and looked after many other details.

The author would like to thank several individuals who contributed specifically to the preparation of the Site District 6-7 report. The encouragement of J. L. Riley (Royal Ontario Museum) throughout the project was greatly appreciated. Mr. Riley provided information on plant distributions and on specific natural areas, as well as providing ideas, company in the field during previous and supplemental visits to the site district, and comments on the first draft of this report. The author also thanks S. Varga (University of Toronto) for sharing data on kettle bogs on the Oak Ridges Moraine, and for joint field inspections on January 11 and 25, 1981. Information on Uxbridge Township was kindly supplied by M. Oldham.

The draft Site District 6-7 report was reviewed by selected experts familiar with the geographical area under study in Site District 6-7. The comments made by P. M. Catling, R. Jones, J. Richards, C. Risley and S. Varga are appreciated and have been added to the data base for ANSIs at district and regional offices and the main office of the Ministry. These reviews generally confirmed the selection of ANSIs made by this site district study.

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1. Candidate Nature Reserves and Significant Sites in Site District 6-7, east of the Niagara Escarpment Planning Area and in Central Region

SUMMARY

Site District 6-7 spans central Ontario in a narrow band from the Niagara Escarpment to the Trent River east of Rice Lake. It parallels the north shore of Lake Ontario, with its southern boundary 13 to 25 km (8 to 15 miles) inland from the lake. The Oak Ridges Moraine, a massive kame moraine, crosses the site district in an east-west direction, attaining elevations of 338 m (1100 feet) or more above sea level. This prominent landscape feature separates the Lake Simcoe and Trent River watersheds from the streams feeding south into Lake Ontario. Its strongly rolling hills are composed of sand and gravel, underlain by silt and clay intermixed with coarse materials. This knobby ridge slopes down towards drumlinized till plains on the north and south. Two isolated clayplains lying along the foot of the north flank of the moraine contain extensive wetlands.

Large tracts of natural forest land, frequently mixed with reforestation plots, blanket the most sharply dissected moraine uplands. Scattered over the west half of the moraine are numerous small kettle wetlands. The proportion of the site district remaining in a natural and relatively undisturbed state varies from approximately 15 to 30 percent along the Oak Ridges Moraine, to 5 to 10 percent on the drumlinized till plains and to 80 percent on the clay plain wetlands. An analysis of physiographic regions, landforms and present natural landscape suggests that the following vegetation-landform features are representative of the study area: upland forests, kettle wetlands and river valleys on the Oak Ridges Moraine, river valleys cut into the till plains sloping south from the moraine, and wetland complexes associated with the clayplains at the foot of the north flank of the moraine (one of which is bordered by a forested glacial lake shoreline).

The study area consists of that part of Site District 6-7 east of the Niagara Escarpment Planning Area and in Central Region. One provincial park with nature reserve potential is located within this area; Peter's Woods Provincial Nature Reserve. The following nine candidate nature reserves offer the best representation of the major vegetation-landform features of the study area:

OAK RIDGES MORAINE	
Upland Forests	Happy Valley Forests (30M/13 115685) Uxbridge Pine-Maple Upland (31D/3 520790) Millvalley Hills Forests (31D/1 310840)
Kettle Wetlands	Vandorf Bog Complex (31D/3 325735) Musselman Lake Complex (31D/3 375755)
River Valleys	Manvers-Fleetwood Creek Valley (31D/2 915890)
SOUTH SLOPE	
River Valleys	Cold Creek Conservation Area (30M/13 040625)
SCHOMBERG CLAY PLAINS	
Wetland Complex and Forested Glacial Lake Shoreline	Pottageville Swamp (31D/4 100740)
Wetland Complex	Scugog Marsh (31D/2 670830)

Two candidate nature reserves extend into adjoining site districts - Millvalley Hills Forests into Site District 6-13 and Scugog Marsh into Site District 6-8. Each of the nine candidate nature reserves contributes features, habitats and/ or vegetation types not found within the others; consequently, further prioriza-tion was not undertaken. Representation of kettle wetlands is limited to the bogs included in two candidate nature reserves. Therefore, examples of certain types of kettle wetlands, such as marshes and swamps, are not incorporated.

A mixture of agricultural, forestry and recreational land use characterizes the district. Urban encroachment and development pressures are evident in the western portion,especially adjacent to Highways 11 and 400 and 27, and centres such as Richmond Hill, Aurora, Newmarket, King City and Nobleton. As Metropolitan Toronto expands to the north, west and east, more and more people will be looking to this area for recreational opportunities as well as for conservation uses and open space.

1. INTRODUCTION

From the Niagara Escarpment to the Trent River east of Rice Lake, Site District 6-7 stretches across central Ontario in a narrow band parallel to the north shoreline of Lake Ontario (Figure 1). The west part of the site district falls within the Niagara Escarpment Planning Area (Figure 2). Only that portion of Site District 6-7 lying east of the Niagara Escarpment Planning Area was included in this study, because an identification and evaluation of candidate nature reserves within the Niagara Escarpment Planning Area was already available (Park Planning Branch, 1976). The easternmost portion of Site District 6-7 extends into the Eastern Administrative Region of the Ministry of Natural Resources. Thus, the boundary between Eastern and Central Regions, ie., the eastern boundary of Haldimand and Alnwick Townships in Northumberland County, defined the eastern limit of the study area (Figure 3).

Site District 6-7 is one of the fifteen site districts in Site Region 6. A site region is defined as an area of land within which the response of the vegetation to the features of the landform follows a consistent pattern (Hills, 1959). Site Region 6 is described as a gently undulating to rolling landscape with ice-laid material deeply covering the bedrock over 80 percent of the area. Local plains of flat, lacustrine deposits and limestone plains shallowly overlain by drift are restricted to several locations. Normal mesic, normal dry and hot dry sites (as defined by Hills, 1959) are typically forested with sugar maple-beech-hemlock, sugar maple-oak-ash and oak-ash respectively. Hemlock, yellow birch, spruce and white cedar occur on wet sites.

Each site region is subdivided into site districts based on landforms which set apart fairly large areas. Hills (1959) described the Uxbridge Site District (6-7) as "an area of deep, very high lime sand and gravel, overlain locally by very high lime clay, silt and loam". The district extends about 200 km (120 miles) in length from Caledon to Brighton Townships, varying in width from 13 to 20 km (8 to 12 miles). Bolton, Nobleton, King City, Aurora, Oak Ridges, Stouffville, Uxbridge, Pontypool and Bewdley are some of the towns and small centres found across the district from west to east.

Four of the minor physiographic regions outlined by Chapman and Putnam (1973) lie wholly or partially within the study area. The Oak Ridges Moraine dominates the district, covering about 55 percent. The South Slope, Peterborough Drumlin Field and Schomberg Clay Plains physiographic regions, occupy small areas, 20 percent, 8 percent and 7 percent respectively. The Iroquois Plain, in Eastern Region, comprises another 10 percent.

The Oak Ridges Moraine, a massive interlobate moraine made up of strongly rolling hills of sand and gravel, crosses the district in an east-west direction. This prominent ridge, with elevations generally of 338 m (1100 feet) or greater, divides drainage to the north into Lake Simcoe and the Trent River system, from streams feeding south into Lake Ontario. It serves as an important groundwater recharge and headwater source area. Because the moraine is composed of sand and gravel sediments intermixed with beds of silt, clay and till, water tends to drain vertically through the highly porous sand and gravel until it reaches less pervious, underlying beds. In these areas, groundwater moves laterally and emerges as springs along the flanks of the moraine. Large tracts of natural forest land ,

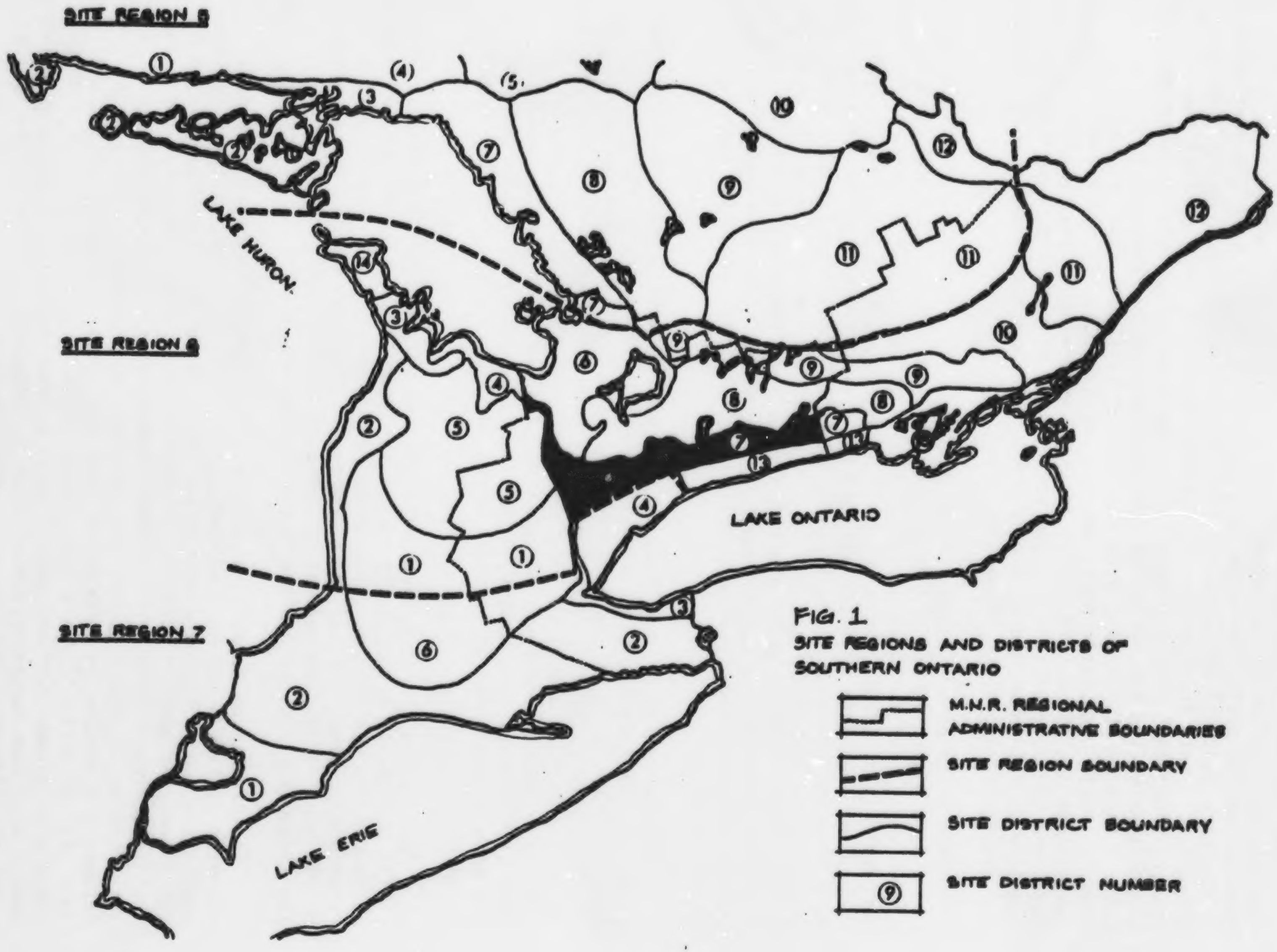
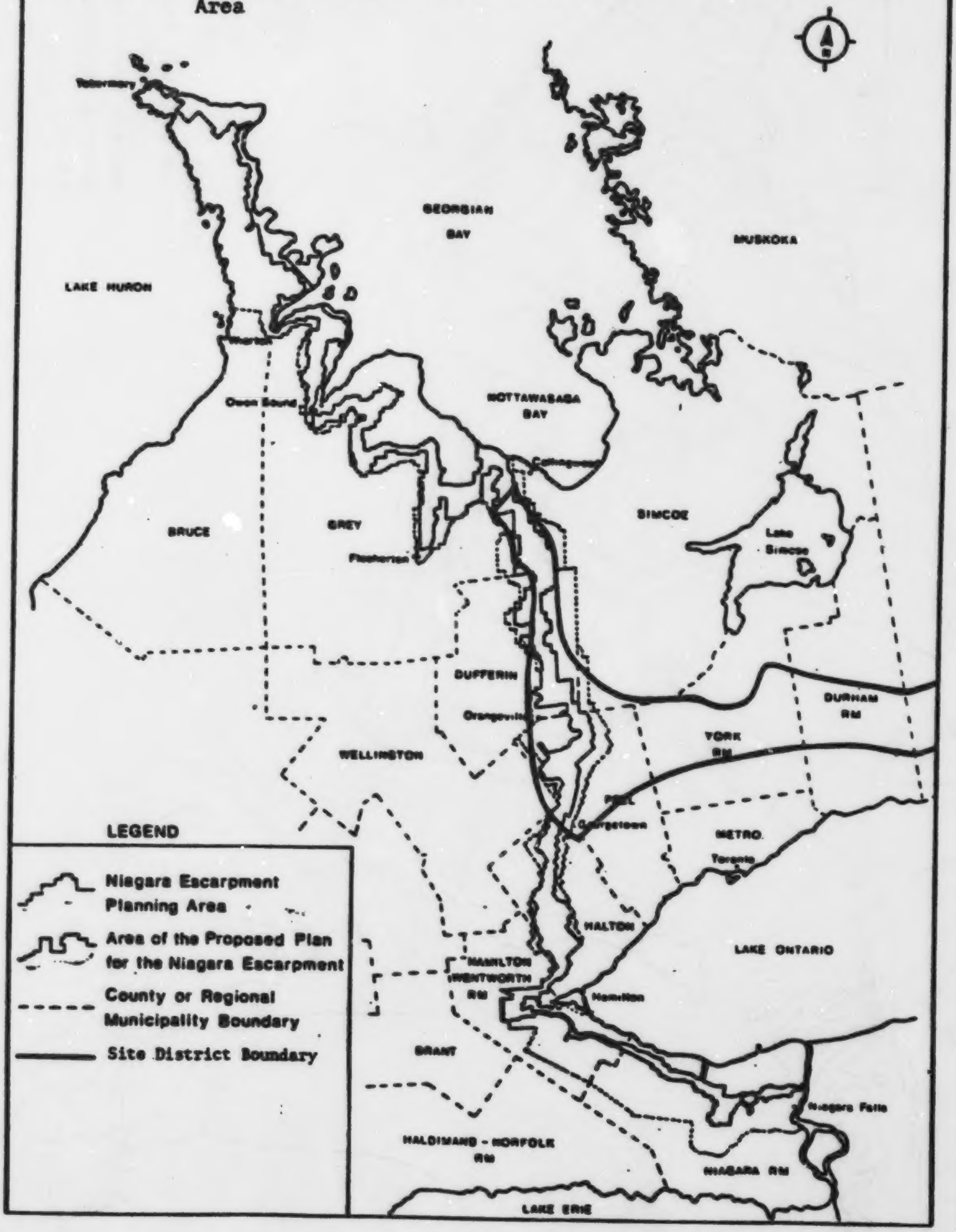

SITE REGION 5
SITE REGION 6
SITE REGION 7
LAKE HURON
LAKE ONTARIO
LAKE ERIE
M.N.R. REGIONAL ADMINISTRATIVE BOUNDARIES
SITE REGION BOUNDARY
SITE DISTRICT BOUNDARY
SITE DISTRICT NUMBER

FIG. 1
SITE REGIONS AND DISTRICTS OF SOUTHERN ONTARIO

Figure 2. Site District 6-7 Relative to Niagara Escarpment Planning Area


Tobermory
GEORGIAN BAY
LAKE HURON
MUSKOKA
Owen Sound
NOTTAWASAGA BAY
Collingwood
BRUCE
GREY
SIMCOE
Lake Simcoe
Flesherton
DUFFERIN
Orangeville
DURHAM RM
YORK RM
WELLINGTON
PEEL
Georgetown
METRO
Toronto
HALTON
LAKE ONTARIO
HAMILTON WENTWORTH RM
Hamilton
BRANT
Niagara Falls
HALDIMAND - NORFOLK RM
NIAGARA RM
LAKE ERIE
LEGEND
Niagara Escarpment Planning Area
Area of the Proposed Plan for the Niagara Escarpment
County or Regional Municipality Boundary
Site District Boundary

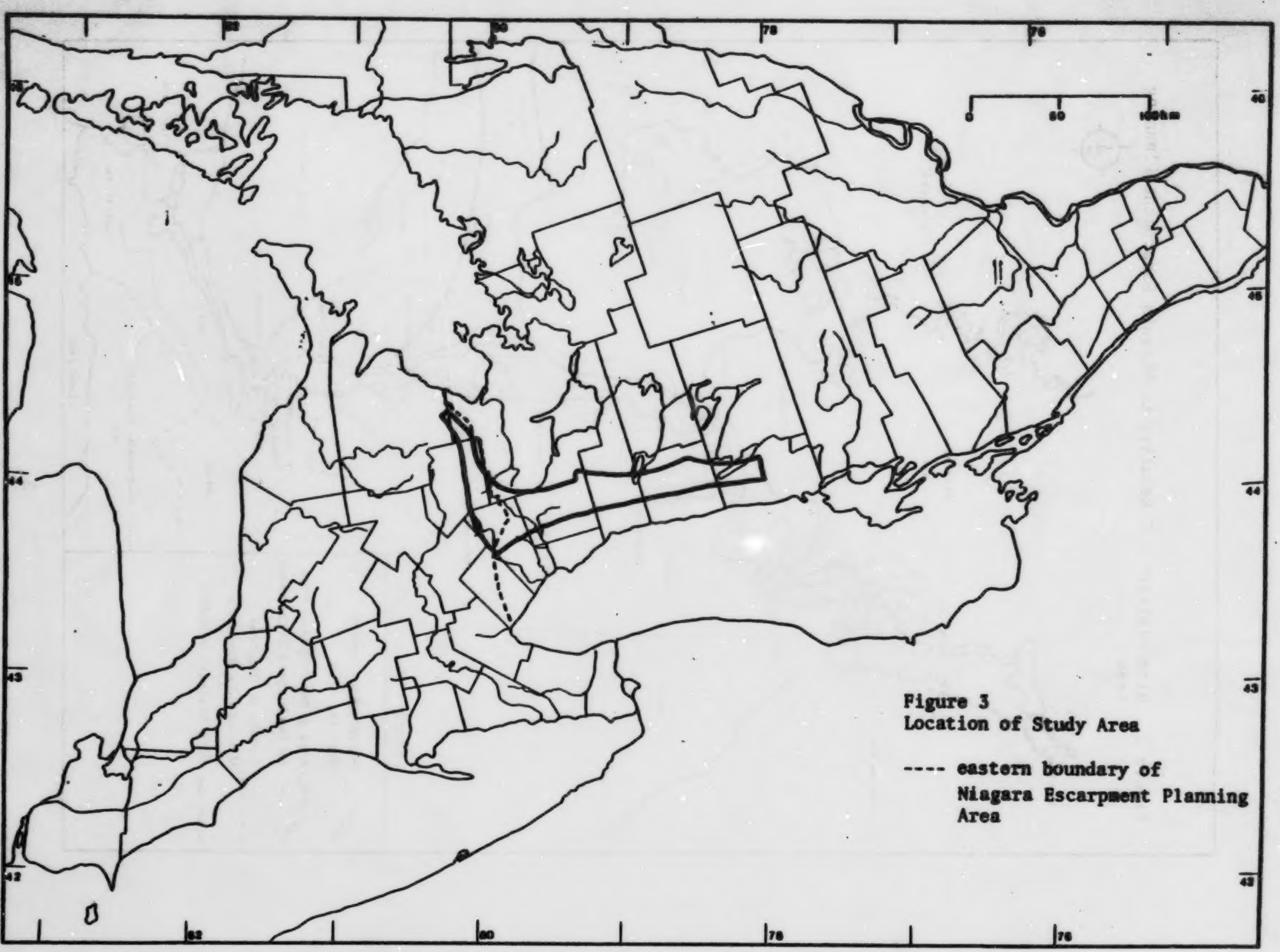

0
50
100km
82
80
78
76
45
44
43
42

Figure 3
Location of Study Area

---- eastern boundary of Niagara Escarpment Planning Area frequently mixed with reforestation plots, blanket the most sharply dissected uplands. The knobby, irregular topography and steep slopes of the moraine create a variety of microclimates; warm dry south-facing slopes are juxtaposed with cool, north-facing slopes. As well, small kettle ponds, lakes and wetlands (marsh, bog and swamp) situated in depressions with impeded drainage are common along the western half of the moraine.

Along the South Slope, a till plain with a few scattered drumlins rises steeply but evenly from elevations of 184 to 246 m (600 to 800 feet) to the more irregular, rugged, slopes of the Oak Ridges Moraine. Another drumlinized till plain, namely the Peterborough Drumlin Field, with greater concentrations of drumlins and a rolling topography, flanks the north slope of the moraine. Three broad basins set along the north slope of the moraine near Schomberg, Newmarket and Lake Scugog hold deep, stratified deposits of clay, silt and sand. These plains, the Schomberg Clay Plains, were laid down in a proglacial ponding which was contemporaneous with early Lake Algonquin.

Table 1 presents an analysis of the landscape of Site District 6-7 east of the Niagara Escarpment Planning Area and its remaining natural features. The five physiographic regions that fall within the site district (one entirely in Eastern Region) are listed in order of importance. For each physiographic region, component landforms are given, based on Chapman and Putnam, 1972 and 1973. As well, the percentage and types of natural areas remaining is estimated, based on a review of the 1:50,000 topographic maps covering the site district.

One park holding with nature reserve potential is located in the study area, which consists of that part of Site District 6-7 east of the Niagara Escarpment Planning Area and in Central Region (Lindsay and Hanna, 1980)[1]. At Peter's Woods Provincial Nature Reserve, south of Rice Lake, a small but exceptionally mature stand of sugar maple - red oak - white pine - beech forest grows on till plain next to old fields and scrubby cedar lowlands. Peter's Woods offers only limited representation of the Peterborough Drumlin Field, however, it does contain one of the better examples of a mature, original, forest stand in the site district. Throughout the rest of the study area, the most common natural features left are: upland forests, kettle wetlands and river valleys on typical sandy, rolling terrain along the Oak Ridges Moraine; river valleys with adjoining upland sites and lowlying swamps within the South Slope physiographic region; and wetland complexes (marsh and swamp) and a forested glacial lake shoreline within the Schomberg Clay Plains physiographic region.

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[1] Seven provincial parks and park reserves within the Niagara Escarpment Planning Area lie wholly or partially within Site District 6-7. Candidate nature reserves have been proposed for five of these - Pretty River Valley, Lavender Falls, Boyne Valley, Mono Cliffs and Scott's Falls (Lindsay and Hanna, 1980; Brownell, 1980). No park holdings are situated in the Eastern Region portion of Site District 6-7.

TABLE 1. SUMMARY OF NATURAL FEATURES ANALYSIS AND CANDIDATE NATURE RESERVE SELECTION PROCEDURE
BY PHYSIOGRAPHIC REGION AND LANDFORM FOR SITE DISTRICT 6-7
EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

ANALYSIS OF NATURAL FEATURES OF SITE DISTRICT					FEATURES REPRESENTED BY CANDIDATE NATURE RESERVES IN PROVINCIAL PARKS/RESERVES			FEATURES MISSING FROM PROVINCIAL PARKS AND PARK RESERVES	CANDIDATE NATURE RESERVES SELECTED TO REPRESENT THE MISSING FEATURES
Physiographic Regions Wholly or partly within Site District	Proportion of Site District covered by Physiographic Region	Landforms found within Physiographic Region	Proportion of Physiographic Region occupied by each Landform	Types of Natural Features remaining on these Landforms and proportion remaining in a Natural Condition	Park Name	Feature(s)	Approx. Area		
Oak Ridges Moraine (small portions extend into 6-8, 6-13 and 7-4)	55	Kame Moraine	95	-15-30% left in forest and wetland including: -large upland forest tracts of 200 to 1500 ha on complex, rolling moraine terrain -frequent small kettle lakes, ponds and wetlands (bogs, marshes, swamps) scattered on west half -many small streams and larger river valleys, rising on moraine and draining north and south -west part more built up with urban and recreational development -a number of kettle lakes have attracted summer resorts and cottages, for example Wilcox Lake	-	-	-	-upland forests on rolling moraine terrain -kettle wetlands -river valleys	-Happy Valley Forest (30M/13 115685) -Uxbridge Pine-Maple Stand (31D/1 520790) -Millvalley Hills Forest (31D/1 310840 *partly in Site District 6-13) -Vandorf Bog Complex (31D/3 325735) -Musselman Lake Complex (31D/3 375755) -Manvers-Fleetwood Creek Valley (31D/2 915890)
		Till Moraine	5	-10% or less remains -small upland woodlots -many kettle wetlands -streams, rivers and headwaters					

TABLE 1. SUMMARY OF NATURAL FEATURES ANALYSIS AND CANDIDATE NATURE RESERVE SELECTION PROCEDURE
BY PHYSIOGRAPHIC REGION AND LANDFORM FOR SITE DISTRICT 6-7
EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

ANALYSIS OF NATURAL FEATURES OF SITE DISTRICT					FEATURES REPRESENTED BY CANDIDATE NATURE RESERVES IN PROVINCIAL PARKS/RESERVES			FEATURES MISSING FROM PROVINCIAL PARKS AND PARK RESERVES	CANDIDATE NATURE RESERVES SELECTED TO REPRESENT THE MISSING FEATURES
Physiographic Regions wholly or partly within Site District	Proportion of Site District covered by Physiographic Region	Landforms found within Physiographic Region	Proportion of Physiographic Region occupied by each Landform	Types of Natural Features remaining on these Landforms and proportion remaining in a Natural Condition	Park Name	Feature(s)	Approx. Area		
South Slope (also in 6-13, 7-4)	20	Till Plain	85	-5 to 10% remains in forest and wetland	-	-	-	-river valleys with adjoining upland till plain sites -(wetlands, ie, swamps)	-Cold Creek Conservation Area (30M/13 040625)
		Sandplain	10		-	-	-		
		Bevelled Till Plain	5	-natural areas are mainly associated with streams and river valleys -scattered small ponds and wetlands; some feeding streams that flow south to Lake Ontario -a few, small (5 ha), isolated woodlots	-	-	-		
Iroquois Plain (in Eastern Region)	10	Sandplain	40	-about 20% -mostly river valleys, lowlands between drumlins	Eastern Region →				
		Drumlinized Till Plain	15	-a few small woodlots					
		Clayplain	15	-little remains					
		Muck	15	-80% or more covered by wetland (Murray Marsh)					
		Kame Moraine	5	-a few small sites on dissected moraine terrain, along stream courses					

TABLE 1. SUMMARY OF NATURAL FEATURES ANALYSIS AND CANDIDATE NATURE RESERVE SELECTION PROCEDURE BY PHYSIOGRAPHIC REGION AND LANDFORM FOR SITE DISTRICT 6-7 EAST OF THE NIAGARA ESCARPMENT PLANNING AREA

ANALYSIS OF NATURAL FEATURES OF SITE DISTRICT					FEATURES REPRESENTED BY CANDIDATE NATURE RESERVES IN PROVINCIAL PARKS/RESERVES			FEATURES MISSING FROM PROVINCIAL PARKS AND PARK RESERVES	CANDIDATE NATURE RESERVES SELECTED TO REPRESENT THE MISSING FEATURES
Physiographic Regions Wholly or partly within Site District	Proportion of Site District covered by Physiographic Region	Landforms found within Physiographic Region	Proportion of Physiographic Region occupied by each Landform	Types of Natural Features remaining on these Landforms and proportion remaining in a Natural Condition	Park Name	Feature(s)	Approx. Area		
Peterborough Drumlin Field (majority in Site District 6-8)	8	Drumlinized Till Plain	95	-5 to 10% -lowlands along river and streams -small upland sites associated with valleys -shoreline marshes lying between drumlin promontories along Rice Lake	Peter's Woods Provincial Nature Reserve see Harris Island Park Reserve in Site District 6-8	-mature sugar maple-red oak-white pine-beech woods, on drumlinized till plain, at foot of Oak Ridges Moraine -scrubby mixed cedar lowland -old fields	10 ha (25 acres) 16 ha (40 acres) 12 ha (30 acres)	-see Site District 6-8; -forested drumlins -interdrumlin and river valley lowlands -Rice Lake Marshes	-see Site District 6-8
Schomberg Clay Plains (also in 6-8)	7	Sandplain	45	-about 30% -forested slopes of a glacial lake, north of Pottageville -forested slopes rising from south end of Lake Scugog to Oak Ridges Moraine	-	-	-	-wetland complexes (swamp, marsh) -forested glacial lake shoreline	-Pottageville Swamp (31D/4 100740) -Scugog Marsh (31D/2 670830) *The north part of Scugog Marsh lies in Site District 6-8
		Muck and Sandplain	10	-about 80% -two large wetland complexes (Pottageville Swamp and Scugog Marsh)					
		Clayplain	40	-very little, 3%					

2. METHODOLOGY

This section outlines the four steps taken during an analysis of natural features found within Site District 6-7, and in the identification and evaluation of candidate nature reserves.

(i) Natural Features Analysis

The Protection Objective of Ontario's Provincial Parks Policy (1978) is "to protect provincially significant elements of the natural and cultural landscape of Ontario." Life science resources are the living part of the natural landscape, for example, forests, marshes, plants, animals and their supporting environments. A preliminary life science assessment of provincial parks and park reserves in Central and Southwestern Regions, which identified significant life science features and proposed Nature Reserves, was completed in 1980 (Lindsay and Hanna, 1980). This life science evaluation of Site District 6-7 is one part of a study of all site districts in southern Ontario, initiated in April, 1980. The goal of both these assessments is to identify areas that best illustrate the natural features and landscapes of Ontario, for inclusion in the park system as Nature Reserves or Nature Reserve zones in parks and protection through other means such as Conservation Authorities and Municipal Official Plans.

Following the assessment of life science features represented in the provincial parks system, it was necessary to determine the natural features and landscapes that were not included in the parks system. Site Districts, as defined by Hills (1959), served as an ecological framework for the analysis of the diversity of natural landscapes found in southern Ontario. Initially, an overview of the natural features characteristic of each site district was undertaken. This overview of Site District 6-7 is summarized on Table 1.

The minor physiographic regions of Chapman and Putnam (1973) were used to segregate the site district into distinctive landform complexes. The proportion of the site district covered by each physiographic region was estimated. For each physiographic region, physiography maps (Chapman and Putnam, 1972; 1:253,440) were used to tabulate landforms and derive their importance in terms of relative area covered. After scanning 1:50,000 topographic maps, the prominent natural features associated with various landform types were recorded, along with an estimate of the percentage of natural area remaining in a relatively undisturbed condition. The features represented within proposed Nature Reserves in provincial parks and park reserves located within the site district were also summarized on the chart. The final statement about features typical of the site district, but missing from the provincial parks system, was the end result of the natural features analysis.

The remainder of the study focussed on selecting and documenting the best examples of the dominant vegetation-landform features of the site district; in other words, choosing candidate nature reserves to represent the missing features identified through the natural features analysis. Sections (ii) to (iv) of the Methodology describe the steps followed. Table 2 tabulates the time spent on each step.

TABLE 2. TIME ALLOCATION FOR NATURAL FEATURES ANALYSIS AND CANDIDATE NATURE RESERVE SELECTION PROCEDURE

STEP	DAYS
1. Natural Feature Analysis (overview of natural landscape of Site District 6-7 and identification of life science features missing from provincial parks system).	3
2. Review of Background Information (review of topographic maps, physiography maps, background information on documented sites of biological significance, air photos; and selection of sites for field checking).	6
3. Field Reconnaissance (by automobile and foot)	5
4. Site Evaluation (final review of air photos, maps and field notes, preparation of Environmental Data Cards and mapping of significant sites, selection of candidate nature reserves after evaluation and comparison of significant sites).	6

(ii) Review of Background Information

Background information on sites of biological significance had already been compiled and mapped on a set of 1:50,000 N.T.S. maps on file at the Parks and Recreation Section, Ministry of Natural Resources, Central Region, Richmond Hill. The background information available for the site district was summarized according to 1:50,000 N.T.S. map sheets and physiographic regions, by B. Mackay and P. Terpstra. These summaries are presented in Appendix B. The major sources of information for this site district were Environmentally Sensitive Areas Reports (ESA), International Biological Program Check-sheets (IBP), and published literature (see Bibliography).

Topographic and physiographic maps were reviewed in conjunction with the information on documented sites of biological significance to select sites with representative life science features and nature reserve potential. A quick scan of the 1971 air photos for most of the study area aided in the identification of representative areas. After this examination of maps, background information and 1971 air photos, a list of sites for field checking was prepared.

The following five criteria formed the basis for all phases of site selection and evaluation. Within each physiographic region and the site district as a whole, sites illustrating similar features were compared in terms of representation, diversity, condition, ecological considerations and special features.

(a) Representation - Representation of the remaining natural features of the site district was of primary importance. The dominant vegetation-landform features of the site district were given special emphasis.

(b) Diversity - Diversity was appraised in terms of the number and range of vegetation-landform features or habitats found within a site. The representation value of a site usually increases in proportion to the diversity of habitats contained within the site.

(c) Condition - The degree of past disturbance to the main feature(s) of the site was assessed. Logging, grazing, fire, drainage, flooding, mining, housing developments, transportation and utility corridors and recreation were some of the impacts that were considered. Because all of southern Ontario has been effected by human disturbance to varying degrees, none of the sites selected are pristine.

(d) Ecological Considerations - Ecological considerations such as size, shape, buffering from adjacent land use and watershed location were also weighed. Generally, larger sites, which would be more likely to maintain stable and diverse natural communities, were chosen over smaller sites. However, for certain life science features only small remnant sites are left, especially in the extreme southern part of Ontario (Site Region 7). In such cases, sites that were close together or linked were ranked higher than widely spaced, small areas. Recent work on island biogeography (Diamond, 1975) suggests that species extinctions are less likely to occur in larger sites, linked sites or closely spaced sites than in small, isolated sites. Headwater areas and watershed units where some degree of control over inputs would be possible were given special attention.

(e) Special Features - Allowance was also made for special features such as the presence of rare and endangered species, species of phytogeographical interest (significant species), nesting sites for colonial birds such as heronries, and concentrations of breeding and/or migratory waterfowl. The special features criterion was of secondary importance; it was applied only after representation, diversity, condition and ecological considerations had been assessed. Because detailed and complete biological data was lacking for most sites, caution was exercised in comparing the special features of sites with different levels of background data.

(iii) Field Reconnaissance

During the compilation of natural areas information for the site district, a total of five days, July 17, 18, 21 and 29 and September 3, 1980 were spent field checking sites in Site District 6-7. The study team consisted of the author and field assistant, B. Mackay. The area was travelled by automobile and to a lesser extent by foot. During the five days of field work, twenty-five sites were visited. An average of one to two hours was spent at each site, usually travelling a preselected route that traversed the main feature(s) and as many different habitats as possible. Sometimes time limitations allowed only for a general inspection from vantage points close to concession roads. Brief notes on the general landscape, soils, site drainage, vegetation types, flora and fauna, condition and adjacent land use were made. As well, two weekend trips in January 1981 were devoted to field reconnaissance of several kettle bogs on the Oak Ridges Moraine; sites identified initially through airphoto interpretation. The frozen conditions facilitated access to bogs which are ringed by moats of open water in the spring, summer and fall. On January 11, 1981, kettle bog sites were visited with J. Riley and S. Varga and on January 25, 1981 with S. Varga.

Due to time constraints, eleven sites were checked solely through airphoto interpretation and the available background information. About one-half of the significant sites finally selected and two-thirds of the candidate nature reserves were examined by the author in the field during August and September, 1980 or in January, 1981.

(iv) Site Evaluation

Following field reconnaissance, each site was reviewed, evaluated and compared with other similar sites within its vegetation-landform type. For certain sites where land-use changes were suspected, the 1978 airphotos on file at the Ministry Airphoto Library, Queen's Park, Toronto, were consulted. A few poor quality or unrepresentative sites were deleted. The remainder were denoted significant sites (see Glossary). Environmental Data Cards were prepared for each significant site, outlining its location, vegetation-landform feature(s), general physical and biological characteristics, watershed, size and disturbances. Boundaries were mapped on topographic maps (1:50,000 scale).

Following further evaluation within vegetation-landform types, candidate nature reserves (see Glossary) were selected from the list of significant sites. Representation, diversity, condition and ecological considerations were weighted equally in the evaluation process, while special features were of secondary importance. Life Science Inventory Checksheets were written for each candidate nature reserve, documenting its significant features, comparing it to other similar significant sites and providing the rationale for its selection.

Appendix A consists of the checksheets for candidate nature reserves and the Environmental Data Cards for significant sites, organized within physiographic regions by vegetation-landform feature types. Sites are listed in order of priority or significance within groupings of similar sites. Topographic maps (1:50,000 scale) showing the boundaries of significant sites and candidate nature reserves, and background data, are on file at the Parks and Recreation Section, Ministry of Natural Resources, Central Region, Richmond Hill.

It should be noted that ownership was not generally considered during the evaluation process. Exceptions were Indian Reserve and Department of National Defense lands which are outlined on the 1:50,000 topographic maps. Significant sites on these federally-controlled lands were not recommended as candidate nature reserves, even if they contained the best quality or only example of a major vegetation-landform feature in the site district. The reason for this exception was that these federal lands were considered to be outside of provincial control.

The preparation of this report involved the compilation of existing data on the natural areas of Site District 6-7. This data included available information on Environmentally Sensitive Areas in the site district, airphoto review, topographic map review, and some contact with individuals knowledgeable about the site district. A limited amount of time was devoted to field checking of sites in order to assess their current condition and the degree of representation offered by each.

The emphasis of this study was directed towards vegetation-landform features. Therefore, areas of high quality wildlife and fisheries habitat, and special sites such as concentrations of rare or endangered flora and fauna, are generally missing unless otherwise a component of a representative vegetation-landform feature.

3. CANDIDATE NATURE RESERVES

The natural features analysis of the study area identified six major vegetation-landform features remaining in a relatively natural state: (1) upland forests on typical, rolling, Oak Ridges terrain, (2) kettle wetlands in poorly-drained depressions on the moraine, (3) river valleys originating on and dissecting the shoulders of the moraine, (4) river valleys traversing the South Slope till plains, (5) wetlands, marsh and swamp, developed on the flat Schomberg Clay Plains and (6) a forested glacial lake shoreline bordering and rising from the Schomberg Clay Plains. Table 1 relates these vegetation-landform features to the physiographic regions found in Site District 6-7, east of the Niagara Escarpment Planning Area. This study sought areas to illustrate the major natural features of three of the four physiographic regions in the study area - the Oak Ridges Moraine, the South Slope and the Schomberg Clay Plains. Limited representation of the Peterborough Drumlin Field is already provided by Peter's Woods Provincial Nature Reserve. The candidate nature reserves identified by Hanna (1980) for the Peterborough Drumlin Field portion of Site District 6-8 complement the features found at Peter's Woods.

Following the review of background information, air photo interpretation and limited field work, thirty sites in the study area were chosen as significant sites. Significant sites were considered representative of the site district and of at least regional significance. After further evaluation, nine of these thirty significant sites were selected as candidate nature reserves, because they were the best quality sites representing the major vegetation-landform features of the study area. On Table 1, the candidate nature reserves selected are grouped according to physiographic region. The location of the nine candidate nature reserves within the study area is shown on Figure 4. Table 3 summarizes the main features of each candidate nature reserve and compares approximate sizes.

Collectively, the nine candidate nature reserves illustrate almost all of the dominant natural features of the study area. The nine areas contain a combination of upland and wetland habitats as well as representation of two river valley systems. Each candidate nature reserve contributes features, habitats and/or vegetation types not found within the others.

The two candidate nature reserves that feature kettle bogs, the Vandorf Bog Complex and the Musselman Lake Complex, were chosen from six documented kettle bogs on the Oak Ridges Moraine (see Appendix B) based on air photo interpretation, the available background data and in some cases, a winter field inspection. By checking topographic maps and scanning air photos, an additional five potential kettle bogs were identified. Brief descriptions of these sites are given in Appendix C. These five sites, together with the six already identified, should be examined during the growing season. Further documentation would allow their re-evaluation in terms of representation, diversity, condition, ecological considerations and special features.

Along the western extent of the study area, development pressures on the remaining, unprotected, natural areas are great, from such developments as estate residential housing, transportation or utility corridors or recreational homes. Five of the candidate nature reserves - Happy Valley Forests, Uxbridge Pine-Maple Upland, Vandorf Bog Complex, Musselman Lake Complex and Pottageville Swamp - can be considered threatened because they are located within the growth region surrounding Metropolitan Toronto.

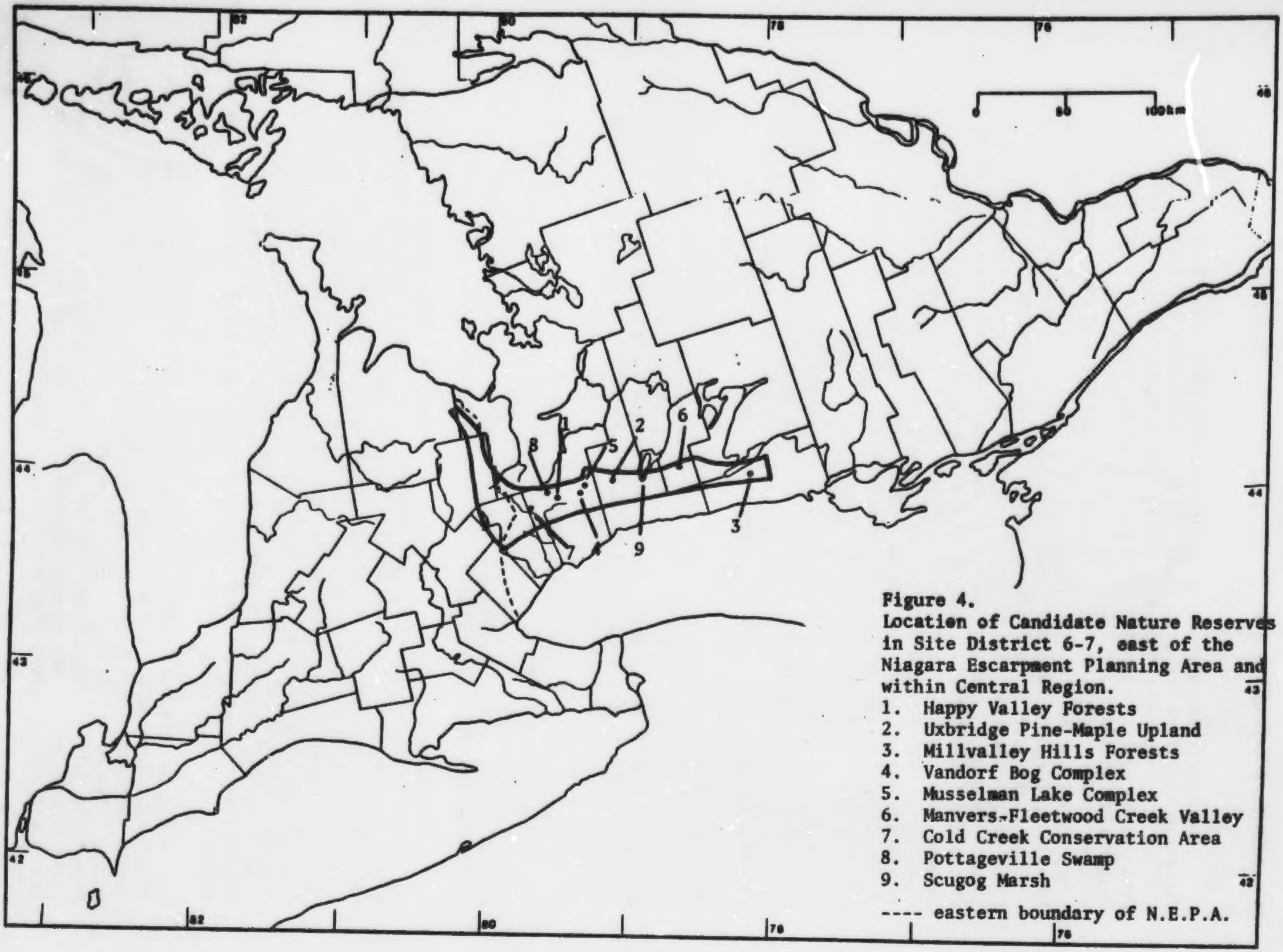

Figure 4.
Location of Candidate Nature Reserves in Site District 6-7, east of the Niagara Escarpment Planning Area and within Central Region.

1. Happy Valley Forests
2. Uxbridge Pine-Maple Upland
3. Millvalley Hills Forests
4. Vandorf Bog Complex
5. Musselman Lake Complex
6. Manvers-Fleetwood Creek Valley
7. Cold Creek Conservation Area
8. Pottageville Swamp
9. Scugog Marsh

---- eastern boundary of N.E.P.A.

TABLE 3. SUMMARY OF THE MAJOR FEATURES REPRESENTED IN CANDIDATE NATURE RESERVES IN SITE DISTRICT 6-7, EAST OF THE NIAGARA ESCARPMENT PLANNING AREA AND IN CENTRAL REGION

CANDIDATE NATURE RESERVE	MAJOR VEGETATION-LANDFORM FEATURES REPRESENTED	VERY APPROXIMATE SIZE (ha)
OAK RIDGES MORAINE		
Happy Valley Forests (30M/13 115685)	-An outstanding and extensive example of maple-beech-hemlock forests on steeply rolling, moraine terrain. Typical of the forests found along western extent of Oak Ridges Moraine. Mixed lowlands along headwater streams, several wetland depressions and rare plants add to diversity.	650
Uxbridge Pine-Maple Upland (31D/3 520790)	-Best example of a white pine dominated forest on a gently rolling, sandy, moraine upland. Only sizable white pine stand seen by author on Oak Ridges Moraine in 1980.	80
Millvalley Hills Forests (31D/1 310840) -partly in Site District 6-13	-Moraine hills forested with younger successional vegetation, in which oak forms a major component. This younger, oak-aspen-birch-maple-pine forest type is characteristic of the eastern half of the Oak Ridges Moraine. Headwaters of Baltimore Creek rise within area.	280
Vandorf Bog Complex (31D/3 325735)	-Contains two of the larger kettle bogs remaining on the Oak Ridges Moraine - a treed bog and a kettle lake with a floating bog margin - linked by lowland and upland forest.	80
Musselman Lake Complex (31D/3 375755)	-Demonstrates typical vegetation zonation in a kettle bog complex. Floating shrub bog encircles an open water centre. Shrub bog grades into swamp and forested uplands. One of larger kettle bogs persisting on Oak Ridges Moraine.	100

TABLE 3. SUMMARY OF THE MAJOR FEATURES REPRESENTED IN CANDIDATE NATURE RESERVES IN SITE DISTRICT 6-7, EAST OF THE NIAGARA ESCARPMENT PLANNING AREA AND IN CENTRAL REGION

CANDIDATE NATURE RESERVE	MAJOR VEGETATION-LANDFORM FEATURES REPRESENTED	VERY APPROXIMATE SIZE (ha)
Manvers-Fleetwood Creek Valley (31D/2 915890)	-Fleetwood Creek finds its headwaters within this valley complex of forested, dissected moraine slopes, lowland forests of cedar-white spruce-balsam fir in broad valley bottom, and a streamside wet meadow.	260
SOUTH SLOPE		
Cold Creek Conservation Area (30M/13 040625)	-A river valley complex. Coniferous swamp with bog elements lies in valley bottom. Adjoining valley slope and rim habitats, cut into till plain, support mixed and deciduous forest stands. Protected by Metro Toronto and Region Conservation Authority.	80
SCHOMBERG CLAY PLAINS		
Pottageville Swamp (31D/4 100740)	-An extensive swamp complex bordered on east by a forested glacial lake shoreline.	750
Scugog Marsh (31D/2 670830) -also in Site District 6-8	-A very extensive marsh complex. Highly significant for breeding and migratory waterfowl.	2700

4. CONCLUSIONS

There is only one provincial park holding with nature reserve potential within the study area. At Peter's Woods Provincial Nature Reserve, south of Rice Lake, a small but notably mature stand of maple-oak-pine-beech forest grows on till plain, adjacent to old fields and scrubby cedar lowlands. This provincial nature reserve provides limited representation of the Peterborough Drumlin Field. An additional nine candidate nature reserves are recommended to represent the major vegetation-landform features of the study area.

Happy Valley Forests, Uxbridge Pine-Maple Upland and Millvalley Hills Forests exemplify different types of upland forest associated with the Oak Ridges Moraine. Three of the larger kettle bogs surviving on the Oak Ridges Moraine are found at Vandorf Bog and Musselman Lake, in conjunction with other lowland and upland habitats. The Manvers-Fleetwood Creek Valley candidate nature reserve incorporates a headwater section along a river originating on the Oak Ridges Moraine; while Cold Creek Conservation Area features a river valley cut into the South Slope till plains. Lying within the Schomberg Clay Plains physiographic region are two extensive wetlands, a swamp complex bordered by a glacial lake shoreline (Pottageville Swamp) and a very large marsh complex (Scugog Marsh). Two of the candidate nature reserves extend into adjoining site districts - Millvalley Hills Forest into Site District 6-13 and Scugog Marsh into Site District 6-8.

The nine candidate nature reserves selected illustrate almost all of the major natural features identified as missing from the provincial parks and park reserves of the site district during the Natural Features Analysis phase. Each candidate nature reserve contributes features, habitats and/or vegetation types not found within the others. Nevertheless, examples of certain sorts of kettle wetlands, for instance, ponds and lakes consisting mainly of open water, marshes, swamps, and possibly some bog types, are not represented among the candidate nature reserves selected. Therefore, further analysis of the different kettle wetlands that are so prevalent along the western half of the moraine is suggested, including the significant sites (kettle wetlands) listed in Appendix B and the potential kettle bogs outlined in Appendix C.

Supplementary fieldwork and documentation of the nine candidate nature reserves is also recommended. Because this study was an overview at a broad regional level, there was no opportunity to examine individual sites in detail. Research into the feasibility of protecting candidate nature reserves over the long term is suggested. Present ownership, the designation of the site and surrounding lands in Official Plans and Zoning By-laws, and other environmental factors effecting present use and future stability (such as watershed characteristics) should be investigated.

Candidate nature reserves should either be acquired directly by public agencies such as the Ministry of Natural Resources and Conservation Authorities or by private groups like the Nature Conservancy or Naturalist clubs. Alternatively, the present owners could be encouraged to work cooperatively to protect areas through private landowner agreements. The significant sites identified by this study are also valuable ecological areas which should receive protection through the land-use planning process (i.e., Zoning Bay-laws, Official Plans).

Many biological sites of regional or local significance have been missed by this study; for example, regionally significant upland forest sites, river valley systems and kettle wetlands. The main purpose of the study was to identify natural areas of provincial interest, and time constraints allowed only for an examination of the study area at a broad overview level. During the study, the author discovered that data on sites of biological significance in the study area was scant. Consequently, there is an urgent need for a comprehensive study of Environmentally Sensitive Areas in the western part of the study area, in the Regional Municipalities of Peel, York and Durham, where development pressures are greatest.

GLOSSARY

Areas of Natural and Scientific Interest (ANSI): ANSIs are areas of land and water containing natural landscapes or features which have been identified as having values related to protection, natural heritage, scientific study or education. ANSIs may vary in level of significance. The most significant of these, Candidate Nature Reserves in the site district reports, may contribute to the achievement of the Ministry's protection objective. Those which do not contribute to the provincial protection objective are referred to as Significant Sites in the site district report.

Candidate Nature Reserve: Candidate nature reserves are sites selected on a systematic basis to represent the natural features and landscapes of Ontario and to complement other protected zones in the provincial park system. Candidate nature reserves contain the best examples of the landform and vegetation features of each site district; features that may be of widespread or restricted occurrence within the site district. They are selected after comparison and evaluation of significant sites sharing similar features. Each candidate nature reserve possesses sufficient ecological integrity, buffering capacity and size that protection appears to be a viable management strategy.

Physiographic Region: Chapman and Putnam (1973) described and mapped fifty-two minor physiographic regions within southern Ontario. These physiographic regions are areas with recognizable local landform patterns. Map 1 outlines the physiographic regions that fall wholly or partially within the site district.

Significant Site: A site of at least regional significance and representative of the landform and vegetation features of the site district. Chosen after reviewing the background information available on sites of biological importance, airphoto analysis and field checking of selected areas. After final evaluation and comparison of similar significant sites, some were chosen as candidate nature reserves. However, all significant sites are recommended for protection through the land-use planning process.

Site District: A subdivision of a site region, with a characteristic pattern of physiographic features (Hills, 1959). Site districts are small scale map units that segregate substantial areas from each other on the basis of broad landform patterns. Refer to Figure 1.

Site Region: An area of land within which the response of the vegetation to the features of the landform follows a consistent pattern (Hills, 1959). Refer to Figure 1.

APPENDIX A: NATURE RESERVE CHECK-SHEETS AND ENVIRONMENTAL DATA CARDS FOR SIGNIFICANT SITES IN SITE DISTRICT 6-7, CENTRAL REGION

Page Number

OAK RIDGES MORAINE

UPLAND FORESTS, MAPLE-BEECH-HEMLOCK TYPE

Happy Valley Forests (30M/13 115685)-CNR[1] 25, 27
Glen Major Forests (31D/3 540740) 27
Jefferson Forest - West Section (30M/14 255645) 27
Jefferson Forest - East Section (30M/14 265650) 28
Maple Uplands and Kettle Wetlands (30M/14 210620) 28
Pottageville Southeast Upland (30M/13 115705) 28
Simeon Lake North (30M/14 295695) 29
White Rose West Forest (30M/14 250700) 29
Goodwood Southeast Upland (31D/3 505760) 29

UPLAND FOREST, PINE FOREST TYPE

Uxbridge Pine-Maple Upland (31D/3 520790)-CNR 31, 33

UPLAND FOREST, OAK TYPE

Millvalley Hills Forests (31D/1 310840)-CNR 35, 37
Ganaraska Forest, west of Carmel (31D/1 005865) 37

KETTLE BOGS

Vandorf Bog Complex (31D/3 325735)-CNR 39, 43
Musselman Lake Complex (31D/3 375755)-CNR 41, 43
Wilcox Lake Wetlands and Uplands (30M/14 270670) 43
White Rose Bog (30M/14 285712) 44
Bond Lake Bog (30M/14 244659) 44
Lake 1 km east of Preston Lake (30M/14 316716) 44

RIVER VALLEYS

Manvers-Fleetwood Creek Valley (31D/2 915890)-CNR 45, 47
Burnley Creek (31D/1 380910) 47

SOUTH SLOPE

RIVER VALLEYS, SWAMPS

Cold Creek Conservation Area (30M/13 040625)-CNR 49, 51
Tyrone River Valley (31D/2 820780) 51
Elizabethville Swamp (31D/1 045785) 51

SCHOMBERG CLAY PLAINS

WETLAND COMPLEXES

Pottageville Swamp (31D/4 100740)-CNR 53, 57
Scugog Marsh (=Osler Tract) (31D/2 670830)-CNR 55, 57
Pottageville Swamp North (31D/4 090755) 57

PETERBOROUGH DRUMLIN FIELD

RICE LAKE MARSHES

Sand Point Marsh (31D/1 140865) 59
Otonabee River Delta Marsh (31D/1 210925) 59
Harwood Marsh (31D/1 265910) 59
Dunnette Landing Marsh (31D/1 300960) 60

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[1] CNR indicates a candidate nature reserve

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME Happy Valley Forests

MAP NAME Bolton

MAP NUMBER 30M/13

UTM REF. 115685

COUNTY, DISTRICT or REGIONAL MUNICIPALITY York

LAT. 43° 58'N

LONG. 79° 37'W

ALT. MIN. MAX. ca. 850 ft. - 1150 ft.

LOCALITY 7 km northwest of King City

TOWNSHIP King

LOTS

CONCESSIONS

AREA about 1600 acres about 650 ha

OWNERSHIP

ADMINISTRATION

FOREST REGION AND DISTRICT L.1

SITE REGION AND DISTRICT 6-7

MNR REGION AND DISTRICT Central-Maple

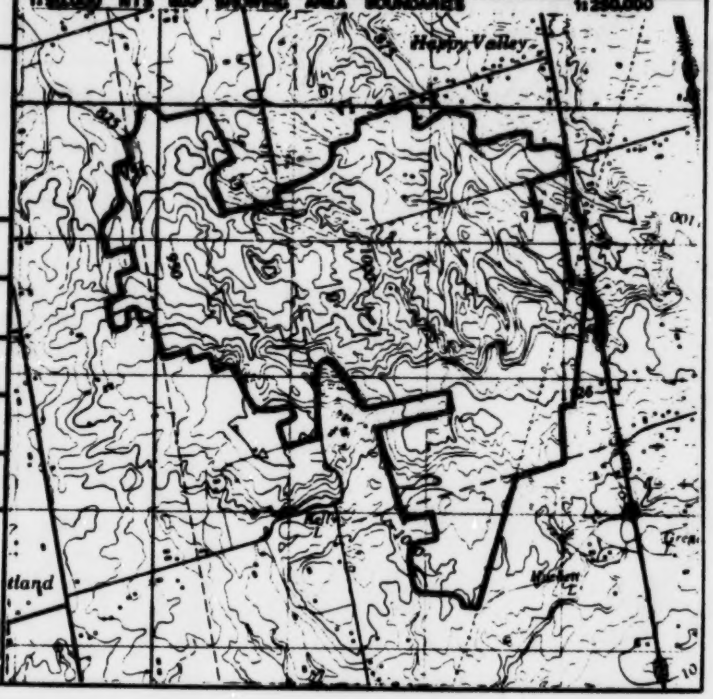
CONSERVATION AUTHORITY South Lake Simcoe

AERIAL PHOTOGRAPHS

BASE MAP: 438793

YEAR	ROLL	FLIGHT LINE	NUMBERS
1978	68	4369	84-86
1978	48	4368	34-39
1978	48	4367	85-92
1978	48	4366	270-275

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

Happy Valley Forests is an extensive forest tract set on steeply rolling terrain at the western end of the Oak Ridges Moraine. Several streams rise in the area and flow north into the Holland River, through Pottageville Swamp (31 D/4 100740). The slopes and uplands of the steep, rolling ridges are wooded with mature to intermediate-aged stands of sugar maple, beech, ash, white birch, hemlock, oak and black cherry. The mixed lowland forests along the many small tributary creeks contain more cedar, yellow birch, white birch, ash, aspen and balsam poplar. Several small wetland depressions and occasional ponds are scattered among the hills.

Happy Valley Forests is one of four known sites for the lily-leaved twayblade, *Liparis lilifolia*, in Ontario. This orchid is considered rare in Canada and endangered in Ontario (Argus and White, 1977; Catling and Whiting, 1976). Further biological studies could well document other significant species in this large forest tract.

Disturbances to this site include a hydro line crossing the eastern portion, a gas pipeline along the west edge, and a disused concession road through the centre. Homes have been built on the fringes of the forest, where roads provide access. However, overall the area is exceptionally well preserved. The landowners in the area might consider Nature Reserve agreements as they are already protecting the area to

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION ☐
VEGETATION SUMMARY ☐
EVALUATION SHEET ☐
COMMUNITY DESCRS. ☐
COMMUNITY COMP. LISTS ☐
SUMMARY SPECIES LISTS ☐
PHYSICAL FEATURES MAP ☐
VEGETATION MAP ☐
BIBLIOGRAPHY ☐
PHOTOGRAPHS ☐

MAJOR INFORMATION SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Brief Field Visit, 21, July 1980; Argus and White, 1977; Catling and Whiting, 1976; Catling, 1979; CAN, unpublished distribution map for *Liparis lilifolia*; Tasker, 1978; Sensitive Areas Report, 1972; Snyder and Logier, 1930, p.203-4.

EVALUATION AND PRIORITIES

An outstanding example of mature maple-beech-hemlock forests on typical dissected Oak Ridges Moraine terrain. Highest priority candidate nature reserve in the study area (Site District 6-7).

DATE COMPILED 8 January 1981

COMPILER K. M. Lindsay

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario. M7A 1W3

a considerable degree.

Maple-beech-hemlock forests on strongly rolling, sandy moraine terrain were observed at a number of sites along the western extent of the Oak Ridges Moraine. The Happy Valley Forests Site is definitely the most extensive, mature, diverse and least disturbed. During this evaluation, Happy Valley Forests was compared with the following similar significant sites - Glen Major (31D/3 540740), Jefferson Forest-West Section (30M/14 255645), Jefferson Forest-East Section (30M/14 265650), Maple Uplands and Kettle Wetlands (30M/14 210620), Pottageville Southeast Upland (30M/13 115705), Simeon Lake North (30M/14 295695), White Rose West Forest (30M/14 250700) and Goodwood Southeast Upland (31D/3 505760). Most of the upland forests on the west part of the Oak Ridges Moraine, in Site District 6-7 (York and Durham Region) are threatened by developments such as estate residential housing and transportation or utility corridors. Already, a number of significant sites identified by previous studies (IBP, 1974; Sensitive Areas Reports, 1972; Oak Ridges Moraine ESA, 1976) have been reduced in size by development.

SITE DISTRICT 6-7; OAK RIDGES MORAINE - Upland Forests, Maple-Beech
Hemlock Type

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Happy Valley Forests	30M/13	115685

BRIEF DESCRIPTION

An extensive forest tract (ca. 650 ha) set on steeply rolling terrain at the western edge of the Oak Ridges Moraine. Just south of Happy Valley. A headwater area for the Holland River. Slopes and uplands wooded with maple-beech-birch-hemlock. Mixed lowlands line stream valleys. Small depressional wetlands scattered through area. One of 4 known sites for *Liparis lilifolia*. Exceptionally well preserved. A candidate nature reserve.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; Argus and White, 1977; Catling, 1979; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 21 July 1980			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO. M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Glen Major Forests	31D/3 also on 30M/14	540740

BRIEF DESCRIPTION

A variety of vegetation types are found at this (ca. 300 ha) site on strongly dissected moraine: maple-beech uplands, hemlock slopes, old fields with natural regeneration, swamp cedar lowlands (headwaters for Duffin Creek) and some coniferous plantation. Many significant plants reported, for eg., *Dryopteris filix-mas*, *Spiranthes lacera*, *Panax quinquefolium*. Near Glen Major, a series of man-made ponds have been created by dams along creek. The homes in hamlet of Glen Major should be excluded.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; Oldham, 1980; Bobbette, 1975; Sensitive Areas Report, 1972.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 29 July, 1980			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO. M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Jefferson Forest-West Section	30M/14	255645

BRIEF DESCRIPTION

Strongly rolling sand hills forested with maple-beech-black cherry, hemlock-beech, and birch-aspen dominate this ca. 130 ha site, 4.5 km north of Richmond Hill, on south edge of Oak Ridges Moraine. Tributaries of Rouge River rise in area and flow southeast through several valleys. Surrounded by golf course on south and east, paved roads on west, north and east. A representative forest, one of less disturbed in region.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; IBP, 1974; Sensitive Areas Report, 1972; Oak Ridges Moraine ESA, 1976

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO. M7A 1W3

1981

SITE DISTRICT 6-7; OAK RIDGES MORAINE - Upland Forests, Maple-Beech-Hemlock Type

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Jefferson Forest-East Section	30M/14	265650

BRIEF DESCRIPTION
A forested sand hill and valley complex of about 200 ha, on strongly dissected terrain along the south slope of the Oak Ridges Moraine. 5.5 km NNE of Richmond Hill. Rich, mature maple-oak-black cherry forest grows in north and east portions. Tributaries of Rouge River flow through and rise in area. Site divided into two sections by Gormley sideroad. At least 20 estate residential homes built south of Gormley sideroad and east of Bayview. North and east portions still intact.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; IBP, 1974; Sensitive Areas Report, 1972; Oak Ridges Moraine ESA,1976

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 3 Sept. 1980			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Maple Uplands & Kettle Wetlands	30M/14 also on 30M/13	210620

BRIEF DESCRIPTION
Upland forests, scattered kettle wetlands, old fields with shrub thickets and the headwaters of the Little Don comprise this ca. 250 ha site, 5 km NE of Maple. The woodlots are younger, cut-over, maple-beech-birch-hemlock and white pine. The kettle at UTM 637624, just east of Dufferin Street, contains cattail marsh encircled by a zone of willow-red osier thickets. A small section of open shrub hummock bog is left near centre (leatherleaf *Sphaghnum*, *Vaccinium macrocarpon*, marsh fern). Cattails have invaded this remaining bog. Gravel pit south of forest.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; Sensitive Areas Report, 1972; Oak Ridges Moraine ESA, 1976

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay 14 Jan. 1981			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Pottageville Southeast Upland	30M/13	115705

BRIEF DESCRIPTION
A high quality, upland forest (maple-beech-hemlock) broken by several creek valleys holding tributaries of the Holland River. On north-facing slope of Oak Ridges Moraine. 1.5 km SE of Pottageville. Just north of the Happy Valley Forests candidate nature reserve. There are several homes situated in the fringes of this forest. About 90 ha in size.

SOURCES Lindsay, 1981, Air Photo Interpretation; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO, M7A 1W3

1981

SITE DISTRICT 6-7; OAK RIDGES MORAINE - Upland Forests, Maple-Beech-Hemlock Type

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Simeon Lake North	30M/14	295695

BRIEF DESCRIPTION

Intermediate-aged forests of sugar maple with some beech, hemlock and white birch cover the rolling uplands of this ca. 100 ha site on the south slope of the Oak Ridges Moraine. Scattered small wetland pockets. A valley system containing the headwaters of Bruce Creek, and cattail marsh/shrub lowland,traverses the area. A subdivision road has been cut into the northwest part of the forest. Woodbine Avenue divides this significant site into two parts.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 29 July, 1980			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
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ONTARIO MINISTRY OF NATURAL RESOURCES
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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	White Rose West Forest	30M/14	250700

BRIEF DESCRIPTION

Relatively mature, maple-beech-hemlock forests characterize this ca. 80 ha site on strongly rolling hills. Plantation at west end. 2.5 km west of White Rose. Small streams rise in area, draining north into the Holland River. Much of forest is still intact. An estate residential development has been carved into southwest edge. Several homes along road bisecting site. A landfill site lies to northeast.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay,Mackay 3 Sept. 1980			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Goodwood Southeast Upland	31D/3	505760

BRIEF DESCRIPTION

About 150 ha of deciduous forest (oak, maple, white birch, black cherry, ash) on strongly rolling, sandy upland. Some coniferous forest around edge. The Pleasant Valley Recreational Development uses these woods for horse, skiing, hiking and roller skating trails. 6 km ESE of Goodwood.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Sensitive Areas Report, 1972; Oak Ridges Moraine ESA, 1976

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay,Mackay 29 July,1980			Lindsay, 1981

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1981

SITE DISTRICT 6-7: OAK RIDGES MORAINE - Upland Forests, Pine Forest Type

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME: Uxbridge Pine-Maple Upland

MAP NAME: Newmarket

MAP NUMBER: 31D/3

UTM REF.: 520790

COUNTY, DISTRICT or REGIONAL MUNICIPALITY: Durham

LAT.: 44 ° 03 'N

LONG.: 79 ° 07 'W

ALT. MIN. MAX.: ca. 1100 ft.-1175 ft.

LOCALITY: 6.5 km south of Uxbridge

TOWNSHIP: Uxbridge

LOTS:

CONCESSIONS:

AREA: about 200acres about 80 ha

OWNERSHIP:

ADMINISTRATION:

FOREST REGION AND DISTRICT: L.1

SITE REGION AND DISTRICT: 6-7

MNR REGION AND DISTRICT: Central-Maple

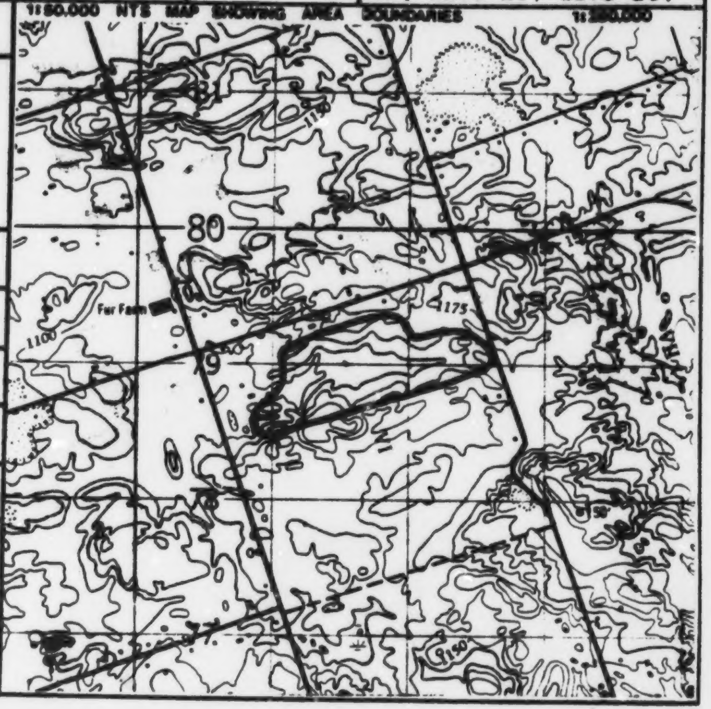
CONSERVATION AUTHORITY: South Lake Simcoe

AERIAL PHOTOGRAPHS

BASE MAP: 441791

YEAR	ROLL	FLIGHT LINE	NUMBERS
1978	37	4404	64 to 66

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

This woodlot on a gently rolling, sandy upland features a relatively mature white pine-sugar maple-white birch stand, estimated to be 80 to 100 years old. The pine stand grades into deciduous forest of maple, white birch, beech, ash, hemlock, and black cherry on the west. Although the west part has been logged selectively for older trees, the overall condition of the woodlot is very good.

This site is recommended as a candidate nature reserve because it is the best example of an older, pine-dominated forest seen by the author on the Oak Ridges Moraine in 1980. Its ecological value is enhanced because it is connected to a large tract of forested moraine on the west, south and east.

A large sand and gravel operation (160 ha) proposed for the lots south of this site could affect this stand adversely, for example, through excavation and slope erosion, blowing sand, lowering of groundwater levels and changes in soil moisture conditions. Another result could be isolation from adjacent forest habitats.

DATA SHEETS ATTACHED

- PHYSICAL DESCRIPTION ☐
- VEGETATION SUMMARY ☐
- EVALUATION SHEET ☐
- COMMUNITY DESCRS. ☐
- COMMUNITY COMP. LISTS ☐
- SUMMARY SPECIES LISTS ☐
- PHYSICAL FEATURES MAP ☐
- VEGETATION MAP ☐
- BIBLIOGRAPHY ☐
- PHOTOGRAPHS ☐

MAJOR INFORMATION SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Brief field visit, 29 July, 1980; Bobbette, 1975; Oak Ridges Moraine ESA, 1976.

EVALUATION AND PRIORITIES

Best example of pine-dominated forest on Oak Ridges Moraine.

DATE COMPILED: 21 January 1981

COMPILER: K. M. Lindsay

SITE DISTRICT 6-7; OAK RIDGES MORAINE - Upland Forest, Pine Forest Type

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Uxbridge Pine-Maple Upland	31D/3	520790

BRIEF DESCRIPTION

This woodlot on a gently rolling sandy upland features a relatively mature white pine-sugar maple-white birch stand, estimated to be 80 to 100 years old. The pine stand grades into deciduous forest of maple, white birch, beech, ash, hemlock and black cherry on west. Selectively logged for larger trees. About 80 ha. Located 6.5 km south of Uxbridge.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; Bobbette, 1975; Oak Ridges Moraine ESA, 1976

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay,Mackay 29 July, 1980			Lindsay, 1981

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1981

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Millvalley Hills Forests	Rice Lake	31D/1	310840

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
Northumberland	44 ° 04 ' N	78 ° 07 ' W	ca. 750 ft. - 1050 ft.

LOCALITY
5.5 km NNE of Baltimore

TOWNSHIP **LOTS** **CONCESSIONS**

AREA
ca. 690 acres approx. 280 ha

OWNERSHIP

ADMINISTRATION

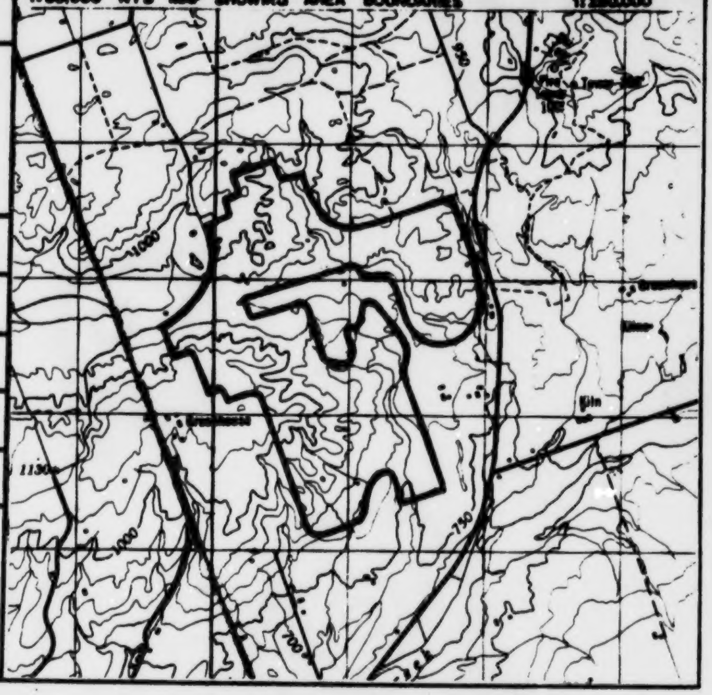
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L.1	6-7/6-13

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Lindsay	Ganaraska

AERIAL PHOTOGRAPHS
BASE MAP: 441781

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	55	4404	48-50
1971	10	4403	159, 160

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

Lying along the southern edge of the Oak Ridges Moraine, Millvalley Hills Forests straddles the boundary between Site District 6-7 and 6-13. This dry, moderately rolling sandy upland, broken by several valleys, slopes towards the east and south. Tributaries of Baltimore Creek rise in the area and flow south into Lake Ontario at Cobourg via Cobourg Creek. Young to intermediate-aged forests of sugar maple-red oak-white oak-white pine, red oak-white birch-sugar maple and large-toothed aspen-sugar maple -red oak-beech cover the upland and slopes. Most of the intermediate-aged stands have been selectively logged. A hydro transmission corridor divides the area in two parts.

The Millvalley Hills Forests is one of the larger tracts of natural forest left along the eastern stretch of the Oak Ridges Moraine. It represents a younger, successional forest type, in which oak forms a major component; a type that occurs frequently along the eastern half of the Oak Ridges Moraine. Although these forests are only young to intermediate-aged, they were some of the most mature seen in this region. As well, Millvalley Forests protects the headwater sources of Baltimore Creek and contains creek habitats.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION ☐
VEGETATION SUMMARY ☐
EVALUATION SHEET ☐
COMMUNITY DESCRS. ☐
COMMUNITY COMP. LISTS ☐

SUMMARY SPECIES LISTS ☐
PHYSICAL FEATURES MAP ☐
VEGETATION MAP ☐
BIBLIOGRAPHY ☐
PHOTOGRAPHS ☐

MAJOR INFORMATION SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Brief Field Visit, 18 July, 1980; IBP, 1972; Sensitive Areas Report, 1972

EVALUATION AND PRIORITIES

An example of the younger forests in which oak is an important component, characteristically found along the east half of the Oak Ridges Moraine. South part in Site District 6-13.

DATE	COMPILER
3 February, 1981	K. M. Lindsay

SITE DISTRICT 6-7; OAK RIDGES MORAINE - Upland Forest, Oak Type

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Millyalley Hills Forests	31D/1	310840

BRIEF DESCRIPTION

Partly in Site District 6-13. A moderately rolling sandy upland covered with young to intermediate-aged deciduous forests of sugar maple, red oak, white oak, white pine, white birch, beech and large-toothed aspen. Some plantation, clearings. This moraine upland slopes towards east and south. Tributaries of Baltimore Creek dissect the slopes. About 280 ha. 5.5 km NNE of Baltimore. Selectively logged. A hydro transmission corridor bisects area.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; IBP, 1972; Sensitive Areas Report, 1972.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 18 July, 1980			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Ganaraska Forest, W of Carmel	31D/1	005865

extends onto 31D/2

BRIEF DESCRIPTION

This large tract contains young natural forest stands (oak aspen, white birch, white pine, maple, cherry) mixed with and surrounded by conifer plantation. Traversed by Baxter Creek, an excellent coldwater stream, which discharges into Trent. Tributaries of Ganaraska rise here also and flow south. 5 km west of Carmel. Boundaries are very approximate . Size roughly 500 ha. Should be examined to determine if representative natural stands could be set aside as benchmark and seed source areas. Rare plants reported-*Ranunculus rhomboideus*, *Corrallorhiza odontorhiza*.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Cavan Township ESA, 1979

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
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1981

SITE DISTRICT 6-7: OAK RIDGES MORAINE - Kettle Bogs

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Vandorf Bog Complex	Newmarket	31D/3 Also on 30M/14	325735

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
York	44 ° 00 ' N	79 ° 21 ' W	ca. 1025 ft. - 1075 ft.

LOCALITY
4 km east of Vandorf

TOWNSHIP | LOTS | CONCESSIONS

AREA
ca.200 acres about 80 ha

OWNERSHIP

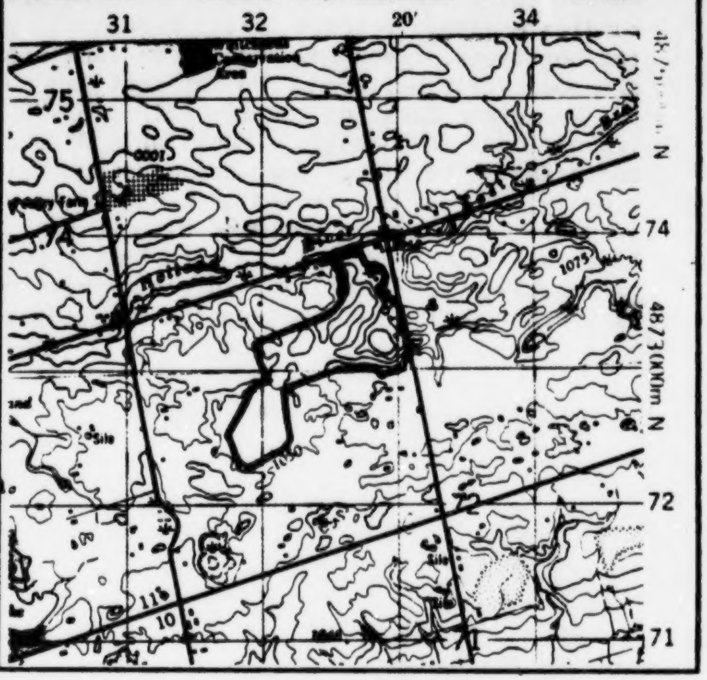
ADMINISTRATION

FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L.1	6-7
MNR REGION AND DISTRICT	**CONSERVATION AUTHORITY**
Central-Maple	Metro Toronto Region.

AERIAL PHOTOGRAPHS
BASE MAP: 438792/441792

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	32	4341	28-30

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

In this complex, two bogs, a treed bog and a kettle lake with a bog margin, are linked by lowland and upland forest. Floating bog mat borders the south and west shorelines of the small lake at UTM 329732, just west of the 5th concession road. The border sustains characteristic bog plants such as leatherleaf, *Spaghnum*, bog laurel (*Kalmia polifolia*), pitcher plant, sundew (*Drosera rotundifolia*), buckbean (*Menyanthes trifoliata*), bog cranberry (*Vaccinium macrocarpon*) and grass pink (*Calopogon pulchellus*). A home overlooks the lake from the east. Towards the west, the bog mat grades into cedar-tamarack swamp backed by deciduous uplands.

In the southwest at 30M/14 320725, an elliptic-shaped kettle depression holds a relatively large treed bog composed of mature but semi-open tamarack, white pine, black spruce, white birch, leatherleaf and *Sphaghnum* and an association of younger white birch and leatherleaf with bog laurel, labrador tea, highbush blueberry (*Vaccinium corymbosum*) and cottongrass (*Eriophorum virginicum*). Deciduous lowland forest (red, silver and sugar maple, yellow birch, hemlock) fills the south end of this 20 ha basin. Two broad swaths have recently been clearcut through this lowland forest, and the fields along its west side bulldozed, as part of a golf course development. The rest of the site may also be threatened.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION ☐
VEGETATION SUMMARY ☐
EVALUATION SHEET ☐
COMMUNITY DESCRS. ☐
COMMUNITY COMP. LISTS ☐
SUMMARY SPECIES LISTS ☐
PHYSICAL FEATURES MAP ☐
VEGETATION MAP ☐
BIBLIOGRAPHY ☐
PHOTOGRAPHS ☐

MAJOR INFORMATION SOURCES
Lindsay, 1980-81, Air Photo Interpretation; Lindsay and Varga, Brief Field Visit; 25 January, 1981; Varga, 1981; Catling, 1969.

EVALUATION AND PRIORITIES
Contains two of the larger kettle bogs persisting on the Oak Ridges Moraine - a treed bog and a kettle lake with floating bog margin.

DATE COMPILED	COMPILER
2 February, 1981	K. M. Lindsay

Small kettles containing ponds, lakes, marshes, swamps and less frequently bogs characterize the western part of the Oak Ridges Moraine. The Vandorf Bog candidate nature reserve offers good quality, relatively large examples of two bog types, treed bog and kettle lake with floating bog margin. Both bogs are moderately buffered from adjacent land use. Another candidate nature reserve, the Musselman Lake Bog Complex (31D/3 375755), features a similar extent of bog (mainly open shrub bog), a comparable diversity of habitats, and moderate buffering. The Wilcox Lake Wetlands and Uplands (30M/14 270670) also ranks very closely. It was not chosen as a candidate nature reserve because the bog feature is small (about 2 ha compared with 20 ha). However, it is a very significant, high quality, diversity site with better buffering than either the Vandorf Bog or Musselman Lake Complex. Further study and comparison of these sites, along with other kettle wetlands on the Oak Ridges Moraine, is suggested.

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Musselman Lake Complex	Newmarket	31D/3	375755

COUNTY, DISTRICT or REGIONAL MUNICIPALITY: York

LAT. 44 ° 01 'N

LONG. 79 ° 17 'W

ALT. MIN. MAX. ca. 1075 ft. - 1125 ft.

LOCALITY: 1 km southwest of Musselman Lake

TOWNSHIP / LOTS / CONCESSIONS:

AREA: ca. 250 acres approx. 100 ha

OWNERSHIP:

ADMINISTRATION:

FOREST REGION AND DISTRICT: L.1

SITE REGION AND DISTRICT: 6-7

MNR REGION AND DISTRICT: Central-Maple

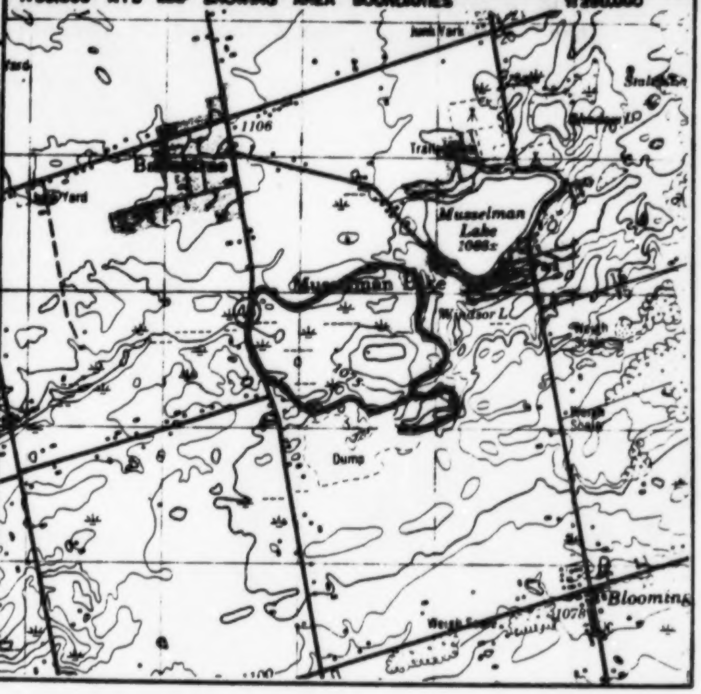
CONSERVATION AUTHORITY: South Lake Simcoe

AERIAL PHOTOGRAPHS

BASE MAP: 441792

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	1	4401	41, 42

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

The Musselman Lake Complex consists of a kettle bog, of about 20 ha, and mixed lowlands and deciduous uplands lying to the east. A wide band of very wet, floating shrub bog (leatherleaf, *Spaghnum* hummocks with scattered, small tamarack) encircles an open bog pool. A limited extent of treed tamarack bog, a moat of flooded willow-dogwood thickets and deciduous swamp complete the zonation. Regionally rare plants such as buckbean (*Menyanthes trifoliata*), water arum (*Calla palustris*), bog cranberry (*Vaccinium oxycoccos*) and pitcher plant are found. The bog exhibits flooded conditions, which could be caused by impeded drainage or by beaver activity. This bog is apparently a headwater source for the east branch of the Holland River. Highway 48 skirts the west side of the bog crossing its outlet into the east branch of the Holland River. An abandoned corduroy road runs along the west portion of the bog mat. Adjacent land use includes a sanitary landfill site to the south and minor peat extraction in the east arm of the bog.

The Musselman Lake Complex, like the Vandorf Bog Complex (31D/3 375755), contains one of the larger kettle bogs seen by the author on the Oak Ridges Moraine in 1980, and associated lowland and upland habitats. The kettle bog illustrates vegetation zonation from open water to infilling shrub bog, treed bog and deciduous swamp. In terms of area covered, shrub bog predominates. The condition and buffering of

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Lindsay, 1980-81, Air Photo Interpretation;
Brief Field Visit, 3 September, 1980;
Bobbette, 1975.

EVALUATION AND PRIORITIES

Only kettle bog investigated by author on Oak Ridges Moraine which demonstrates typical bog zonation. Has a relatively large extent of shrub bog.

DATE COMPILED: 2 February 1981

COMPILER: K. M. Lindsay

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario. M7A 1W3

the bog can be considered moderate. Further study and comparison with other kettle bogs and wetlands on the Oak Ridges Moraine is suggested. The cause of the flooded conditions should be investigated.

SITE DISTRICT 6-7; OAK RIDGES MORAINE - Kettle Bogs

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Vandorf Bog Complex	31D/3 also on 30M/14	325735

BRIEF DESCRIPTION

An 80 ha complex featuring two bogs (a treed bog and a kettle lake with bog margin) linked by lowland and upland forest. Floating bog mat edges south and west shoreline of small lake at UTM 329732. Grades into cedar-tamarack swamp backed by deciduous uplands. On southwest, a 20 ha kettle depression holds treed bog (tamarack-white pine-black spruce-white birch-leatherleaf-*Sphaghnum*). Homes on east; golf course development on south. A candidate nature reserve.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; Varga, 1981; Catling, 1969

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Varga 25 Jan., 1981			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Musselman Lake Complex	31D/3	375755

BRIEF DESCRIPTION

This 100 ha complex encompasses a kettle bog (of about 20 ha), mixed lowlands and deciduous uplands. A wide band of very wet, floating shrub bog encircles an open bog pool. Treed tamarack bog, a moat with flooded shrub thickets and deciduous swamp complete the zonation. Supports regionally rare plants. Source area for east branch of Holland River. Flooded conditions; Hwy. 48 skirts west side. A candidate nature reserve.

SOURCES Lindsay, 1980-81, Air Photo Interpretation; Bobbette, 1975

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 3 Sept. 1980			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Wilcox Lake Wetlands & Uplands	30M/14	270670

BRIEF DESCRIPTION

70 ha of wetlands (mixed swamp, treed bog, shrub carr and a kettle lake), deciduous upland ridges and old fields in a deep, irregularly-shaped depression. 1 km east of Wilcox Lake. A small (ca. 2 ha) mature treed bog dominated by tamarack, white pine, leatherleaf and *Sphaghnum* with scattered labrador tea, bog laurel, pitcher plant and highbush blueberry lies at centre. Uplands wooded with young oak-poplar-maple. *Platanthera blephariglottis* recorded in 1905 and 1929. Bog recently rediscovered by Varga.

SOURCES Varga, 1981; Lindsay, 1981, Air Photo Interpretation; Oak Ridges Moraine ESA, 1976

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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1981

SITE DISTRICT 6-7; OAK RIDGES MORAINE - Kettle Bogs

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	White Rose Bog	30M/14	285712

BRIEF DESCRIPTION

An open shrub bog centre (dominated by leatherleaf, *Sphaghnum* hummocks, pitcher plant,with scattered, stunted black spruce and tamarack) is surrounded by mature treed bog (tamarack-white pine-black spruce). This small bog (ca. 3 ha) lies 1.5 km NE of White Rose. From 1930-40; significant bog plants were recorded from this site - *Arethusa, Calopogon, Pogonia*. Recently rediscovered by Varga. Habitat for 17 regionally rare plants. Buffered one east by slope and upland forests. A railway line runs along west.

SOURCES

Varga, 1980; Lindsay, 1981, Air Photo Interpretation

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay,Varga Riley, 11 Jan.81			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Bond Lake Bog	30M/14	244659

BRIEF DESCRIPTION

North of Bond Lake, floating treed bog (black spruce - tamarack-white pine) and shrub bog (leatherleaf and *Sphaghnum* hummocks with bog laurel, labrador tea, *Vaccinium oxycoccos, Eriophorum virginicum*, pitcher plant) fills a 10 ha kettle depression. Ringed by a wide moat of open water, shrub carr,and cattail-bluejoint marsh. An impressive hemlock-white pine-white birch stand extends along southeast slope. Fields, Bond Lake Arena on north. 2 homes on south.

SOURCES

Lindsay, 1981, Air Photo Interpretation; Varga, 1981; Oak Ridges Moraine ESA, 1976

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay,Varga 25 Jan. 1981			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Lake 1 km east of Preston Lake	30M/14	316716

BRIEF DESCRIPTION

This small lake (less than 4 ha) has a floating bog island with treed bog dominated by tamarack with white pine, white birch, red maple, black spruce and open shrub bog (leatherleaf, *Sphaghnum*, bog laurel, labrador tea, *Eriophorum virginicum*, pitcher plant). Bog island joined to cattail marsh with scattered leatherleaf on north. A wide zone of open water separates bog island and marsh from shore. Forest along shoreline and 4 homes. Golf course being built immediately to north.

SOURCES

Lindsay, 1981, Air Photo Interpretation; Varga, 1981

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay,Varga 25 Jan. 1981			Lindsay, 1981

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1981

SITE DISTRICT 6-7: OAK RIDGES MORAINE - River Valleys

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Manvers-Fleetwood Creek Valley	Scugog	31D/2	915890

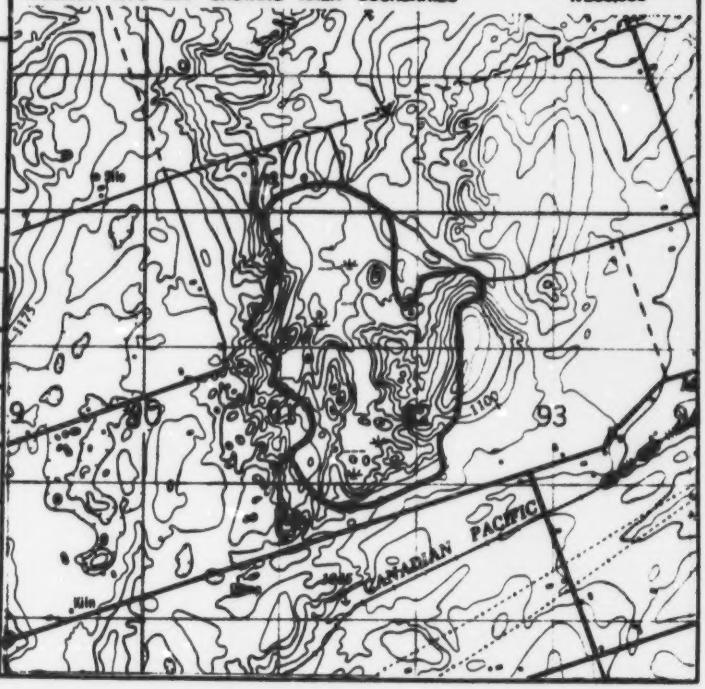
COUNTY, DISTRICT or REGIONAL MUNICIPALITY Durham

LAT. 44 ° 08' N **LONG.** 78 ° 37' W **ALT.** **MIN.** ca. 950 ft. - **MAX.** 1200 ft.

LOCALITY 3 km west of Manvers

TOWNSHIP **LOTS** **CONCESSIONS**

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



AREA ca. 560 acres ca. 260 ha

OWNERSHIP

ADMINISTRATION

FOREST REGION AND DISTRICT L.1

SITE REGION AND DISTRICT 6-7

MNR REGION AND DISTRICT Central-Lindsay

CONSERVATION AUTHORITY Otonabee

AERIAL PHOTOGRAPHS **BASE MAP:** 442783

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	6	4406	98, 99
1971	27	4405	19, 20

PHYSICAL AND BIOLOGICAL FEATURES

Within the Manvers-Fleetwood Creek Valley, sharply dissected moraine slopes enclose a flat, broad valley. Lowland forests of white cedar, white spruce and balsam fir cover the valley floor. The headwaters of Fleetwood Creek rise with this valley and drain north off the Oak Ridges Moraine. Lining the stream course is a wet meadow with scattered larch and spruce and notable plants such as grass-of-parnassus (*Parnassia glauca*) and ladies-tresses orchid (*Spiranthes cernua*). The valley slopes support forests of white birch, white pine, cedar, sugar maple and ironwood.

In Site District 6-7, two significant sites exemplified sections along river valleys originating on the shoulders of the Oak Ridges Moraine, Manvers-Fleetwood Creek Valley and Burnley Creek (31D/1 380910). Manvers-Fleetwood Creek Valley was chosen as a candidate nature reserve, even though both sites rank very closely when all criteria are considered. Manvers-Fleetwood Creek Valley is smaller but in much better condition. The vegetation of the valley slopes is typical of the Oak Ridges Moraine, while the lowland forests and streamside wet meadows are somewhat unusual. Although these sites contain different vegetation associations, both are equally diverse. The Burnley Creek site adjoins Peter's Woods Provincial Nature Reserve.

DATA SHEETS ATTACHED

- PHYSICAL DESCRIPTION ☐
- VEGETATION SUMMARY ☐
- EVALUATION SHEET ☐
- COMMUNITY DESCRS. ☐
- COMMUNITY COMP. LISTS ☐
- SUMMARY SPECIES LISTS ☐
- PHYSICAL FEATURES MAP ☐
- VEGETATION MAP ☐
- BIBLIOGRAPHY ☐
- PHOTOGRAPHS ☐

MAJOR INFORMATION SOURCES

Lindsay, 1980-81, Air Photo Interpretation; IBP, 1972; Sensitive Areas Report, 1972

EVALUATION AND PRIORITIES

A headwater valley complex of forested moraine slopes, cedar-white spruce-balsam fir lowlands and a streamside wet meadow.

DATE COMPILED 22 January, 1981

COMPILER K. M. Lindsay

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Manvers-Fleetwood Creek Valley	31D/2	915890

BRIEF DESCRIPTION

Sharply dissected moraine slopes enclose a flat, broad valley at this ca. 260 ha site, 3 km west of Manvers. Source area for Fleetwood Creek which drains north. Lowland forests of cedar, white spruce and balsam fir fill the valley floor. A wet meadow with scattered larch and cedar lines the stream course. Species of note in the wet meadow include *Parnassia glauca* and *Spiranthes cernua*. Forests of white birch, white pine, cedar, sugar maple and ironwood cover the valley slopes.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; IBP, 1972; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Burnley Creek	31D/1	380910

BRIEF DESCRIPTION

A ca. 500 ha site located just east of Peter's Woods Provincial Nature Reserve, at the foot of the north slope of the Oak Ridges Moraine. It takes in moraine upland, sandplain and drumlinized till plain. Cedar swamp with black ash, dead elm and yellow birch follows the lowland along Burnley Creek and its tributaries. The slopes north and south of creek are wooded with young oak, aspen and pine and sugar maple-hemlock. Interspersed are old fields, plantations, and alder-willow carr along creek. Close to part of the headwaters of Burnley Creek.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Northumberland Co. ESA, 1976; Hanna, 1980

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 17 July, 1980			Lindsay, 1981

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1981

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Cold Creek Conservation Area	Bolton	30M/13	040625

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
York	43 ° 54' N	79 ° 42' W	ca. 800 ft.-850 ft.

LOCALITY 4 km west of Nobleton, on a tributary of the Humber River

TOWNSHIP King **LOTS** **CONCESSIONS**

AREA approx. 200 **acres** approx. 80 **ha**

OWNERSHIP

ADMINISTRATION

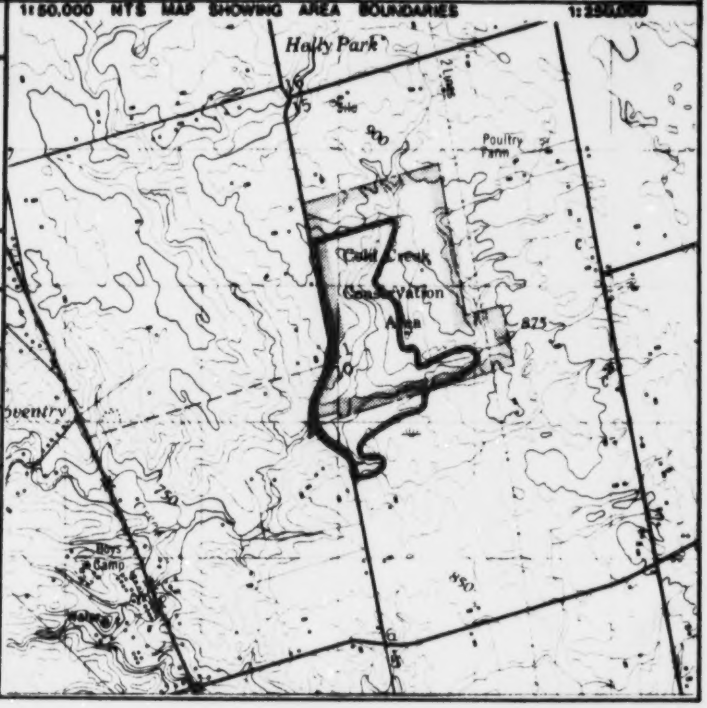
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L.1	6-7

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Maple	Metro Toronto Region

AERIAL PHOTOGRAPHS **BASE MAP:** 438793

YEAR	ROLL	FLIGHT LINE	NUMBERS
1978	53	4364	70, 71
1978	30	4363	93-95

1:50,000 NTS MAP SHOWING AREA BOUNDARIES **1:250,000**



PHYSICAL AND BIOLOGICAL FEATURES

At Cold Creek Conservation Area, a steep-sided, flat-bottomed valley has been cut into till plain on the South Slope of the Oak Ridges Moraine. Two springfed tributaries of Cold Creek flow through the valley. (These creeks rise less than 2 km to the north and east.) Marl, overlain by peat 1 km in depth, covers calcareous, stony, clay till. Mature coniferous swamp (black spruce - cedar - balsam fir - tamarack) with bog elements such as *Sphaghnum*, pitcher plant, sundew and bog orchids occupies about 16 ha of the basin. This boggy swamp core is edged by cedar swamp with scattered black spruce and white birch (about 9 ha). Forests of sugar maple, cedar and hemlock line the valley slopes (14 ha). A beech - maple- hemlock stand grows on the upland at the valley rim (14 ha). Old fields, farm fields and conservation area facilities surround the site. A concession road skirts its west side.

This candidate nature reserve represents a valley complex of lowlying swamp and adjoining slope and upland sites on the South Slope till plain. The Metro Toronto and Region Conservation Authority owns and manages the area as a conservation education centre with very strict controls on use. Access to the swamp is limited to a well-designed, raised boardwalk. Upstream portions of the creeks should also be protected and allowed to regenerate naturally.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Catling, 1969; IBP, 1971; Lindsay, 1980, Air Photo Interpretation; Sensitive Areas Report, 1972.

EVALUATION AND PRIORITIES

A river valley complex of lowlying, springfed, coniferous swamp with bog elements, and adjoining upland till plain sites.

DATE COMPILED	COMPILER
7 January, 1980	K. M. Lindsay

SITE DISTRICT 6-7; SOUTH SLOPE - River Valleys, Swamps

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Cold Creek Conservation Area	30M/13	040625

BRIEF DESCRIPTION

A steep-sided, flat bottomed valley cut into till plain on the south slope of the Oak Ridges Moraine. 4 km west of Nobleton. The valley holds black spruce-cedar-balsam fir-tamarack swamp with bog elements such as *Sphaghnum*. pitcher plant, sundew and bog orchids. Two springfed tributaries of Cold Creek pass through valley. Sugar maple-cedar-hemlock forests line slopes. A beech-maple-hemlock stand grows on upland. A candidate nature reserve of approximately 80 ha.

SOURCES

Catling, 1969; IBP, 1971; Lindsay, 1980, Air Photo Interpretation; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1980

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Tyrone River Valley	31D/2	820780

BRIEF DESCRIPTION

A 4 km section along a tributary of Bowmanville Creek, just north of Tyrone. The stream originates within the area on south slope of Oak Ridges Moraine, and drains south over till plain. Vegetation consists of rather disturbed, young, scrubby forests of cedar with white birch and poplar. Surrounded by farmland. Three ponds along stream. About 140 ha. One of better river valleys left on south slope, 6-7, but quality of site is low.

SOURCES

Lindsay, 1980, Air Photo Interpretation; Central Lake Ontario Cons. Auth. ESA, 1978; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 18 July, 1980			Lindsay, 1980

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Elizabethville Swamp	31D/1	045785

BRIEF DESCRIPTION

Lying 1.5 km SE of Elizabethville, this site contains a large lowland swamp on sand plain. About 160 ha in size. Two tributaries of the Ganaraska River traverse swamp. Their source area is Dean Hill, 1 km to north. Mixed forests encircle deciduous swamp and a flooded open water section. Should be examined in field.

SOURCES

Lindsay, 1980, Air Photo Interpretation

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1980

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1981

ONTARIO NATURE RESERVES PROGRAM - LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Pottageville Swamp	Alliston	31D/4 also on 30M/13	100740

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. - MAX.
York	44 ° 01 ' N	79 ° 38 ' W	ca. 725 ft. - 925 ft.

LOCALITY North of Pottageville, at foot of north slope of Oak Ridges Moraine

TOWNSHIP **LOTS** **CONCESSIONS**

AREA ca.1850 acres ca. 750 ha

OWNERSHIP

ADMINISTRATION

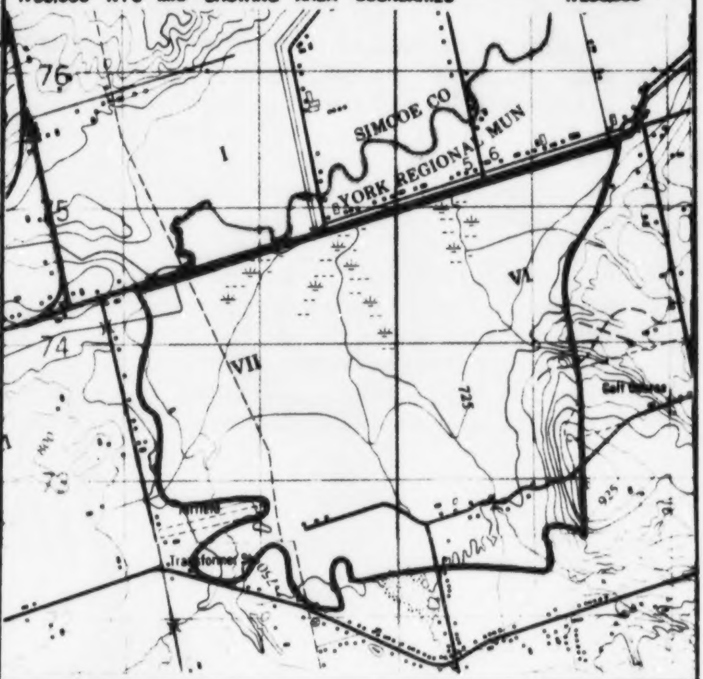
FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L.1	6-7

MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Maple	South Lake Simcoe

AERIAL PHOTOGRAPHS **BASE MAP:** 441793

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	1	4401	21-24
1971	32	4341	12-15

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

Pottageville Swamp lies in a broad catchment basin filled with peat and muck superimposed on lake plain sediments deposited in glacial Lake Schomberg, a small ponding which was contemporaneous with early Lake Algonquin. This extensive swamp is composed of deciduous lowlands (sugar maple-red maple-yellow birch-elm), deciduous swamp (silver and red maple, yellow birch, elm), coniferous swamp (cedar - white spruce - tamarack; tamarack), successional swamp and scrub, a flooded tamarack stand, alder-dogwood thickets, cattail marsh, blue joint sedge meadow marsh and open water. In parts of the coniferous swamp the ground cover includes *Sphaghnum* and other mosses, buckbean (*Menyanthes trifoliata*), pitcher plant (*Sarracenia purpurea*), labrador tea (*Ledum groenlandicum*), bog solomon's seal (*Smilacina trifolia*) and swamp birch (*Betula pumila*).

Deciduous stands cover portions of the glacial lake shoreline which runs along the east slope of the basin. Headwater sources of the Holland River discharge into and converge through the swamp. Because of its colder-than-normal microclimate, Pottageville Swamp furnishes habitat for species more typical of northern regions. Lincoln's Sparrow, White-throated Sparrow, Pine Siskin, Purple Finch, Northern Waterthrush, Nashville Warbler, Golden-crowned Kinglet, Winter Wren, Red-breasted Nuthatch are known to breed. Many regionally significant plants of swamps and bogs are recorded.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Catling, 1969; Cuddy, 1977; Fairfield, 1960; IBP, 1974; Lindsay, 1980-81, Air Photo Interpretation; Mayall, 1938; Saunders, 1947; Sensitive Areas Report, 1972; Snyder and Logier, 1930; Tasker, 1978

EVALUATION AND PRIORITIES

An extensive, well-known swamp complex bordered on east by a forested glacial lake shoreline.

DATE COMPILED	COMPILER
27 January, 1981	K. M. Lindsay

The south, west and east edges of the swamp are disturbed by new roads, a scattering of homes, a gas pipeline, a gravel pit and an airfield. Cumulatively, such developments are reducing the size of the area.

Pottageville Swamp is an extensive natural area representing deciduous and coniferous swamp, shrub carr and marsh habitats. This well-known site has been studied for decades by biologists and naturalists. Proximity to the sources of the Holland River, which feed through the area, enhances its nature reserve potential. One headwater source originates within the Happy Valley Forests candidate nature reserve (30M/13 115685), on the southeast.

Pottageville Swamp is one of two remaining tracts of the continuous swamp, bog and marsh that once stretched along the Holland River. The rest of this wetland was drained and converted to market gardening land in 1927. The Holland River Marsh candidate nature reserve (31D/4 180940; in Site District 6-8), near Cook's Bay at the mouth of the Holland River, is the other large remaining example.

SITE DISTRICT 6-7 & 6-8: SCHOMBERG CLAY PLAINS - Wetland Complexes

ONTARIO NATURE RESERVES PROGRAM – LIFE SCIENCE INVENTORY CHECK-SHEET

NAME	MAP NAME	MAP NUMBER	UTM REF.
Scugog Marsh (=Osler Tract)	Scugog	31D/2	670830

COUNTY, DISTRICT or REGIONAL MUNICIPALITY	LAT.	LONG.	ALT. MIN. MAX.
Durham	44° 05' N	78° 55' W	ca. 825 ft.

LOCALITY
south end of Lake Scugog

TOWNSHIP LOTS CONCESSIONS

AREA
ca. 6670 acres approx. 2700 ha

OWNERSHIP

ADMINISTRATION

FOREST REGION AND DISTRICT	SITE REGION AND DISTRICT
L.1	6-7/6-8

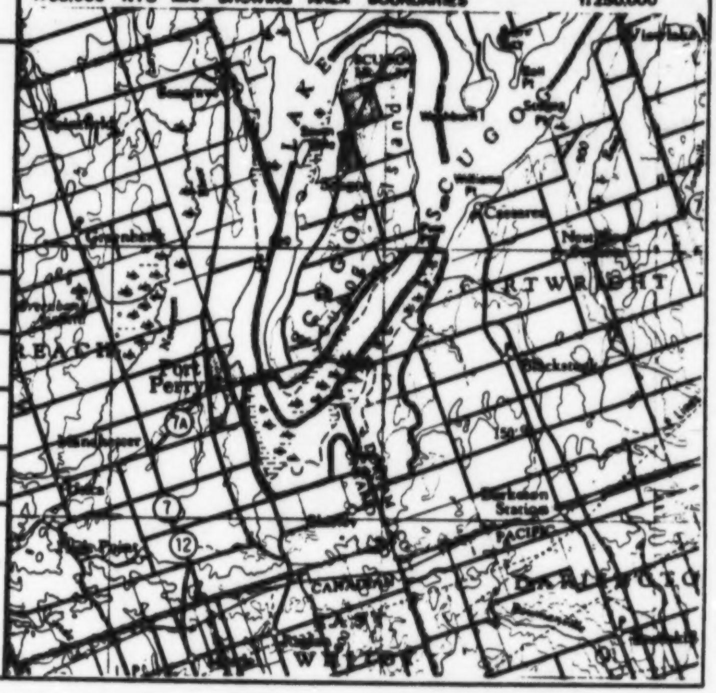
MNR REGION AND DISTRICT	CONSERVATION AUTHORITY
Central-Lindsay	Kawartha

AERIAL PHOTOGRAPHS

BASE MAP: 441784

YEAR	ROLL	FLIGHT LINE	NUMBERS
1971	27	4405	3-6
1971	29	4404	63-66
1971	55	4404	4-8
1971	24	4403	65-69

1:50,000 NTS MAP SHOWING AREA BOUNDARIES 1:250,000



PHYSICAL AND BIOLOGICAL FEATURES

An extensive marsh complex, of more than 2700 ha, remains at the south end of Lake Scugog. Deep-water cattail marsh, stands of wild rice, cattail-sweet gale scrub, alder-willow-sweet gale-swamp birch scrub and open water sections make up the marsh complex. A tamarack-elm swamp. which approaches bog-like conditions in parts, edges the marsh. Mixed woodlands (cedar-birch-silver maple-aspen) and conifer plantations occur on the slopes around the basin. Because of its size and isolation, due to restricted public access, Scugog Marsh provides highly significant habitat for breeding and migratory waterfowl and species such as Common Loon, Osprey and Goshawk. Considerable data on the waterfowl and avifauna of this area has been collected, commencing in the early 1900's when Osler banded waterfowl in the marsh.

A series of access channels was dredged through the marsh about 30 years ago. Hwy 7A passes over a causeway that bisects the area.

Despite these disturbances, the Scugog Marsh was selected as a candidate nature reserve to represent a marsh complex. based on its large size, its diversity and its significance as a breeding bird habitat. Scugog Marsh falls within two site districts, 6-7 and 6-8.

DATA SHEETS ATTACHED

PHYSICAL DESCRIPTION	☐	SUMMARY SPECIES LISTS	☐
VEGETATION SUMMARY	☐	PHYSICAL FEATURES MAP	☐
EVALUATION SHEET	☐	VEGETATION MAP	☐
COMMUNITY DESCRS.	☐	BIBLIOGRAPHY	☐
COMMUNITY COMP. LISTS	☐	PHOTOGRAPHS	☐

MAJOR INFORMATION SOURCES

Hanna, 1980, Air Photo Interpretation; Lindsay, 1980-81, Air Photo Interpretation; Brief Field Visit, 17 July, 1980; Tozer and Richards, 1974; Tozer, 1971; Cuddy, 1977; Bobbette, 1975, Lindsay, 1974

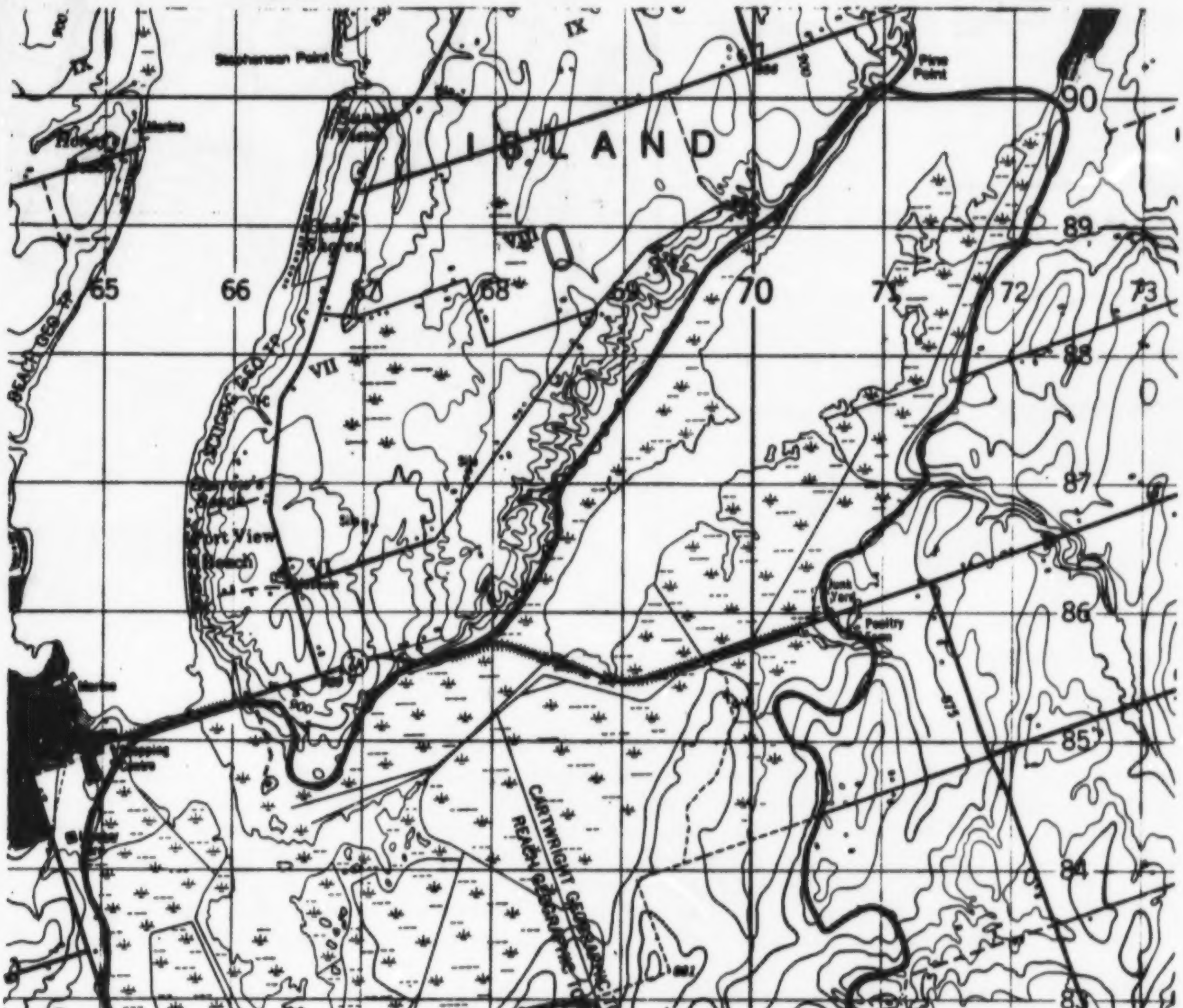
EVALUATION AND PRIORITIES

A very extensive marsh complex. Highly significant for breeding and migratory waterfowl. North part in Site District 6-8.

DATE COMPILED	COMPILER
5 February 1981	K. M. Lindsay and R. Hanna

Ontario Ministry of Natural Resources, Division of Parks, Park Planning Branch, Queen's Park, Toronto, Ontario. M7A 1W3

Scugog Marsh 31D/2 670830



ISLAND
Stephenson Point
Pine Point
IX
VIII
VII
65
66
67
68
69
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71
72
73
90
89
88
87
86
85
84
83
82
81
REACH GEO TP
SCUGOG GEO TP
Port View Beach
Poultry Farm
CARTWRIGHT GEOGRAPHIC TOWNSHIP
REACH GEOGRAPHIC TOWNSHIP
900
875
837
Silo

SITE DISTRICT 6-7: SCHOMBERG CLAY PLAINS - Wetland Complexes (Swamp, Marsh), Forested Glacial Lake Shoreline

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Pottageville Swamp	31D/4 also on 30M/13	100740

BRIEF DESCRIPTION

Pottageville Swamp occupies a peat and muck filled basin underlain by glaciolacustrine sediments, lying at the foot of the north slope of the Oak Ridges Moraine. Approximately 750 ha. Deciduous lowland and swamp (silver maple) blends into coniferous swamp (tamarack, cedar-white spruce tamarack), alder-dogwood thicket and marsh. Tributaries of the Holland River discharge into swamp. The flora and fauna has northern affinities. Disturbances include roads, homes, a gas pipeline and a gravel pit.

SOURCES

Lindsay, 1980-81,Air Photo Interpretation; IBP, 1974; Goodwin, 1960;Catling,1969;Saunders,1947;Tasker,1978.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Pottageville Swamp North	31D/4	090755

BRIEF DESCRIPTION

A section of the Pottageville Swamp extends north of Hwy. 9. It also lies on glaciolacustrine deposits overlain by muck. Deciduous swamp (silver maple-red maple-yellow birch) persists along a meandering channel of the Holland River. This branch originates near Schomberg. North of this, mixed successional lowland and younger deciduous slope forests occur. Approximately 200 ha in size. A gas pipeline crosses part of area.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Scugog Marsh (=Osler Tract)	31D/2	670830

BRIEF DESCRIPTION

Partly in Site District 6-8. A very large marsh complex of more than 2700 ha, at south end of Lake Scugog with an extensive cattail marsh, cattail-sweet gale scrub, alder-willow-sweet gale-swamp birch scrub, open water sections and wild rice stands. Bordered by tamarack-elm swamp which approaches bog-like conditions in parts. Highly significant habitat for breeding and migratory waterfowl. Marsh disturbed by a series of dredged channels south of Hwy. 7A. Mixed woodlands and plantation cover slopes rising from marsh.

SOURCES

Lindsay, 1980-81,Air Photo Interpretation;Tozer and Richards,1974;Cuddy,1977;Bobbette,1975;Sens.Areas Rpt.1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay,Mackay 17 July, 1980			Lindsay, 1981

ONTARIO NATURE RESERVES PROGRAM
ENVIRONMENTAL DATA CARD

ONTARIO MINISTRY OF NATURAL RESOURCES
PARK PLANNING BRANCH ENVIRONMENTAL PLANNING SECTION
3rd FLOOR, WHITNEY BLOCK, QUEEN'S PARK, TORONTO M7A 1W3

1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Sand Point Marsh	31D/1	140865

BRIEF DESCRIPTION

(=Harmony Island Wetlands) At west end of Rice Lake (on clay plain), 150 ha of cattail marsh with sweet gale, red osier dogwood; alder and *Decodon verticillata* in a shallow bay. Backed by mixed swamp (cedar-white spruce-white birch), lowland forest and silver maple swamp. Disturbed by clearing for development. Hwy. 28 crosses the swamp forest behind the marsh.

SOURCES Lindsay, 1980, Air Photo Interpretation; IBP, 1972; Cuddy, 1977; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1980

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Otonabee River Delta Marsh	31D/1	210925

BRIEF DESCRIPTION

A birdfoot delta marsh at the outlet of the Otonabee River (Trent Canal) into Rice Lake. Made up of cattai marsh, alder-sweet gale-red osier-*Decodon vertillatus* thickets, shallow open water, willow-silver maple scrub. A low drumlin island, forested with red oak, ash, basswood and cherry, is included (just east of Cow Island). About 190 ha of excellent wildlife habitat, especially for resident and migratory waterfowl. Disturbed by wake of boats using Trent System. North part within Site District 6-8.

SOURCES Lindsay, 1980, Air Photo Interpretation; IBP, 1972; Cuddy, 1977; Sensitive Areas Report, 1972

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1980

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	Harwood Marsh	31D/1	265910

BRIEF DESCRIPTION

This 100 ha marsh complex lies at the mouth of two small creeks on the south shore of Rice Lake. Dense cattail-sweet gale marsh is fringed on east by cedar-tamarack lowland. Willow-black ash-basswood-elm lowland forest occupies the south end of the basin. Cottages and homes of Harwood village are close to west part. Lowland woods disturbed by grazing and logging in parts.

SOURCES Lindsay, 1980, Air Photo Interpretation; Northumberland Co. ESA, 1976; Cuddy, 1977

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1980

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	SITE REFERENCE
	X	Dunnette Landing Marsh	31D/1	300960

BRIEF DESCRIPTION

180 ha of marsh and swamp fills two bays and lowlands situated between drumlinized promontories on the south shore of Rice Lake. Extensive cattail marshes are backed by cedar-larch-balsam fir-white pine swamp and deciduous lowlands of white birch, maple and red oak. Tributary streams drain through and into bays. A concession road bisects this site, otherwise quality is good.

SOURCES Lindsay, 1980, Air Photo Interpretation; Cuddy, 1977; Sensitive Areas Report, 1972.

FIELD CHECKED BY/DATE	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
Lindsay, Mackay 18 July, 1980			Lindsay, 1980

ONTARIO NATURE RESERVES PROGRAM
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APPENDIX B: DOCUMENTED SITES OF BIOLOGICAL SIGNIFICANCE

1. SITE DISTRICT 6-7: SITES OF BIOLOGICAL SIGNIFICANCE WITH BACKGROUND INFORMATION LISTED BY 1:50,000 N.T.S. MAP SHEET

1:50,000 N.T.S. maps included in Site District 6-7, listed from west to east, north to south.

41A/8 - within N.E.P.A.[1]; no sites listed
41A/1 - within N.E.P.A.; no sites listed
40P/16 - within N.E.P.A.; no sites listed
40P/9 - within N.E.P.A.; no known sites with background information
31D/4 - only sites east of N.E.P.A. have been listed
30M/13 - only sites east of N.E.P.A. have been listed
30M/12 - no known sites with background information east of N.E.P.A.
31D/3
30M/14
31D/2
30M/15 - no known sites with background information
31D/1
31C/4 - no known sites with background information in Central Region; sites in Eastern Region were not listed

LEGEND TO ABBREVIATIONS

RLSS - Site identified by regional life science study
  1. Cuddy, 1977

IBP - Site studied as part of International Biological Program

API - Site identified by air photo analysis (Environmental Data Card)

ESA - Environmentally sensitive area identified in a report for a regional municipality, county or conservation authority
  1. Central Lake Ontario Conservation Authority E.S.A., 1978
  2. Northumberland County E.S.A., 1976
  3. Oak Ridges Moraine E.S.A., 1976
  4. Cavan Township E.S.A., 1979

SA - Ontario Ministry of Natural Resources Sensitive Areas.

INT - Ontario Ministry of Natural Resources internal reports.

OTHER - Other sources of information such as published articles, government reports, personal communication

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[1] N.E.P.A. = Niagara Escarpment Planning Area

31D/4 ALLISTON	UTM GRID REFERENCES	INFORMATION SOURCE
Two cold water streams	875735	OTHER
Pottageville Bog and Swamp	100740	RLSS,IBP,SA,OTHER
30M/13 BOLTON		
West Humber near Albion Hills	910660	ESA$_3$
Palgrave Conservation Area	915675	SA
Albion Hills Conservation Area	940640	SA,ESA$_3$
Gibson Lake	945675	SA,ESA$_3$
Bolton Reservoir	970600	SA
Cold Creek Conservation Area	040625	IBP,SA
Thompson Lake	048670	ESA$_3$
Kelly Lake	110670	OTHER,ESA$_3$
Area of Wooded Hills	115685	SA
Hackett Lake	130665	ESA$_3$
Graveyard Swamp	142650	ESA$_3$
Lake Marie	165680	ESA$_3$
Eversley Lake	190685	ESA$_3$
Bakers Lake	200680	ESA$_3$,SA
31D/3 NEWMARKET		
Cedar Valley	310830	SA,API
Pine Orchard Slopes	315765	API
Vandorf Bog	330735	SA,RLSS,API
---	330750	API
Upper Cedar Valley	330795	API
Musselman Swamp	370755	API
Stouffville Marsh	425740	ESA$_3$
Lake southwest of Goodwood	438745	ESA$_3$
Forest east of Goodwood	475775	ESA$_3$
Goodwood East Upland	510780	API
Uxbridge Forest	520760	SA
Glen Major Kame Forests	540740	API,ESA$_3$
Uxbridge Summit Forest	540780	API
Chalk Lake	565760	ESA$_3$,SA
Chalk Lake Kame Forest	565780	API
Dagmar Forest	580740	ESA$_3$
30M/14 MARKHAM		
Headwaters - Don River (Maple site)	210610	SA,ESA$_3$
Thompson Lake	217642	ESA$_3$
Phillips Lake	235645	ESA$_3$
Bond Lake	235655	ESA$_3$
Pond West of Bond Lake	238652	ESA$_3$
Small Marsh (West of Summit)	243643	ESA$_3$
Bond Lake	245655	ESA$_3$
Jefferson Forest West	250640	IBP,SA
Forested Marsh Area	250685	ESA$_3$
White Rose	250700	SA
Summit Golf and Country Club	260650	ESA$_3$
Jefferson Forest East	270650	IBP,SA
Rudd Lake and Area	270670	ESA$_3$
Haynes Lake	276684	ESA$_3$

30M/14 MARKHAM	UTM GRID REFERENCES	INFORMATION SOURCE
Simeon Lake	295686	ESA$_3$
Victoria Square	300626	SA
Simeon Lake and Surrounding Area	300690	SA
Sources of Rouge River	340705	ESA$_3$
Stouffville Forest	405710	SA
South Dagmar Forest	580715	ESA$_1$

31D/2 SCUGOG		
Lynde Creek - Northeast Tributary	615740	ESA$_1$
Purple Woods	670780	SA,ESA$_1$
Scugog Marsh (Osler Marsh)	670830	API,RLSS,SA,OTHER
Mount Carmel Woods	695775	ESA$_1$
Blackstock	755855	SA
Moraine - Long Sault Forest	760800	ESA$_1$
Bowmanville Creek - West Branch	780750	ESA$_1$
Tyrone - Buffalo Woods	820780	ESA$_1$,SA
Wilmot Creek - Leskard Branch	880782	RLSS,API
---	890770	SA
Manvers-Fleetwood Creek Valley	915890	IBP
Pontypool Upland	955830	API,OTHER
Kendal Provincial Park Reserve	970770	INT
Cavan Creek Headwaters	970935	ESA$_4$

31D/1 RICE LAKE		
Baxter Creek Headwaters	010870	ESA$_4$
Squirrel Creek Headwaters	075865	ESA$_4$
Bewdley West Forest	110850	API
Sand Point Marsh	140865	IBP,RLSS,SA
Bewdley East Marsh	155850	RLSS
Bewdley East Marsh and Upland	165855	SA
West Sugar Island	203900	SA,RLSS
Otonabee River Birdfoot Delta	210925	IBP,RLSS
Harwood Marsh	265910	ESA$_2$,RLSS
Idylwilde Point Marshes	280945	RLSS
Alnwick-Haldimand Area	285920	ESA$_2$
Curtis Point Marsh	290960	RLSS
Wooded Slopes	295925	RLSS
Dunnette Landing Marsh	305965	RLSS
Millvalley Hill Forests	310840	IBP,SA
Peter's Woods Provincial Nature Reserve	370900	INT
---	380910	API
Burnley Creek	390930	ESA$_2$

B. Mackay, P. Terpstra
December, 1980

2. SITE DISTRICT 6-7: SITES OF BIOLOGICAL SIGNIFICANCE LISTED BY PHYSIOGRAPHIC REGION (Chapman and Putnam, 1973)

Physiographic Regions Within 6-7, east of the Niagara Escarpment Planning Area:

Oak Ridges Moraine
South Slope
Iroquois Plain
Peterborough Drumlin Field
Schomberg Clay Plains

OAK RIDGES MORAINE

31D/4 ALLISTON	UTM GRID REFERENCES	INFORMATION SOURCE
Two cold water streams	875735	OTHER
30M/13 BOLTON		
West Humber near Albion Hills	910660	ESA_3
Palgrave Conservation Area	915675	SA
Albion Hills Conservation Area	940640	SA,ESA_3
Gibson Lake	945675	SA,ESA_3
Bolton Reservoir	970600	SA
Kelly Lake	110669	ESA,OTHER
Area of Wooded Hills	115685	SA
Lake Marie	165680	ESA_3
Eversley Lake	190685	ESA_3
Bakers Lake	202680	ESA_3,SA
31D/3 NEWMARKET		
Cedar Valley	310830	SA,API
Vandorf Bog	330735	SA,RLSS,API
---	330750	API
Upper Cedar Valley	330795	API
Musselman Swamp	370755	API
Stouffville Marsh	425740	ESA_3
Lake Southwest of Goodwood	438745	ESA_3
Forest east of Goodwood	475775	ESA_3
Goodwood East Upland	510780	ESA_3
Uxbridge Forest	520760	SA
Glen Major Kame Forests	540740	API,ESA_3
Uxbridge Summit Forest	540780	API
Chalk Lake	565760	ESA_3,SA
Chalk Lake Kame Forest	565780	API

30M/14 MARKHAM	UTM GRID REFERENCES	INFORMATION SOURCE
Headwaters - Don River (Maple site)	210610	SA,ESA$_3$
Thompson Lake	217642	ESA$_3$
Phillips Lake	235645	ESA$_3$
Bond Lake	235655	ESA$_3$
Pond	238652	ESA$_3$
Small Marsh (West of Summit)	243643	ESA$_3$
Bond Lake	245655	ESA$_3$
Jefferson Forest West	250640	IBP,SA
Forested Marsh Area	250685	ESA$_3$
White Rose	250700	SA
Summit Golf and Country Club	260650	ESA$_3$
Jefferson Forest East	270650	IBP,SA
Rudd Lake and Area	270670	ESA$_3$
Haynes Lake	276684	ESA$_3$
Simeon Lake	295686	ESA$_3$
Simeon Lake and Surrounding Area	300690	SA

31D/2 SCUGOG

Purple Woods	670780	SA,ESA$_1$
Moraine - Long Sault Forest	760800	ESA$_1$
Manvers-Fleetwood Creek Valley	915890	IBP
Pontypool Upland	955830	API,OTHER
Cavan Creek Headwaters	970935	ESA$_4$

31D/1 RICE LAKE

Baxter Creek Headwaters	010870	ESA$_4$
Squirrel Creek Headwaters	075865	ESA$_4$
---	110850	API
Bewdley East Marsh	155850	RLSS
---	165855	SA
Alnwick Haldimand	285920	RLSS
Wooded Slopes	295925	RLSS
Millvalley Hills Forests	310840	IBP,SA
Peter's Woods Provincial Park Reserve	370900	INT
---	380910	API
Burnley Creek	390930	ESA$_2$

SOUTH SLOPE

30M/13 BOLTON

Cold Creek Conservation Area	040625	IBP,SA
Thompson Lake North	048670	ESA$_3$
Hackett Lake	130665	ESA$_3$
Graveyard Swamp	142650	ESA$_3$

31D/3 NEWMARKET

Dagmar Forest	580740	ESA$_3$

30M/14 MARKHAM	UTM GRID REFERENCES	INFORMATION SOURCE
Victoria Square	300626	SA
Sources of Rouge River	340705	ESA$_3$
Stouffville Forest	405710	SA
South Dagmar Forest	580715	ESA$_1$

31D/2 SCUGOG

Lynde Creek - Northeast Tributary	615740	ESA$_1$
Mount Carmel Woods	695775	ESA$_1$
Bowmanville Creek - West Branch	780750	ESA$_1$
Tyrone - Buffalo Woods	820780	ESA$_1$,SA
Wilmot Creek - Leskard Branch	880782	RLSS,API
---	890770	SA
Kendal Provincial Park Reserve	970770	INT

PETERBOROUGH DRUMLIN FIELD

31D/2 SCUGOG

Blackstock	755855	SA

31D/1 RICE LAKE

Baxter Creek Headwaters	010870	ESA$_4$
Squirrel Creek Headwaters	075865	ESA$_4$
Sand Point Marsh	135865	SA,IBP,RLSS
Otonabee River Birdfoot Delta	210925	IBP,RLSS
Harwood Marsh	265910	RLSS,ESA$_2$
Idylwilde Point	280945	RLSS
Curtis Point Marsh	290960	RLSS
Dunnette Landing Marsh	305965	RLSS
Burnley Creek	390930	ESA$_2$

SCHOMBERG CLAY PLAINS

31D/4 ALLISTON

Pottageville Bog and Swamp	100740	RLSS,IBP,SA,OTHER

31D/2 SCUGOG

Scugog Marsh (Osler Marsh)	670830	RLSS,API,SA,OTHER

B. Mackay, P. Terpstra
December, 1980

APPENDIX C: POTENTIAL KETTLE BOGS ON OAK RIDGES MORAINE, IDENTIFIED FROM AIR PHOTO INTERPRETATION

SITE DISTRICT 6-7: OAK RIDGES MORAINE - Potential Kettle Bogs Identified from Air Photo Interpretation

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	2 km west of Goodwood	31D/3	422766

BRIEF DESCRIPTION

A small kettle bog consisting of a shrub bog mat and treed bog core encircled by a narrow moat of open water. Surrounded by farm fields.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	1 km NW of Goodwood	31D/3	435777

BRIEF DESCRIPTION

This kettle depression may hold treed bog. The site becomes wetter towards centre. A narrow band of forest fringes the basin.

SOURCES

Lindsay, 1980-81, Air Photo Interpretation.

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	3 km NNE of Musselman Lake	31D/3	395795

BRIEF DESCRIPTION

A small kettle basin which is apparently filled with open shrub bog. Enclosed by slope forests. 3 km NNE of Musselman Lake.

SOURCES

Lindsay, 1981, Air Photo Interpretation

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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SITE DISTRICT 6-7: OAK RIDGES MORAINE - Potential Kettle Bogs Identified from Air Photo Interpretation

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	4 km SW of Uxbridge	31D/3	475820

BRIEF DESCRIPTION

A lowland forest complex, which may contain some bog elements. The site appears to drain to the north. Highway 47 runs along the west side.

SOURCES

Lindsay, 1981, Air Photo Interpretation; Varga, 1981

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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1981

EARTH	LIFE	NAME OF AREA	MAP SHEET	UTM REFERENCE
	X	6 km SE of Uxbridge	31D/3	545810

BRIEF DESCRIPTION

Immediately east of the Uxbridge - Reach Township line is a larger bog ringed by a moat of open water and shrub thickets. Two other possible kettle bogs occupy basins on the southeast.

SOURCES

Lindsay, 1981, Air Photo Interpretation

FIELD SURVEY (DATE)	EARTH SCIENCE CHECK SHEET	LIFE SCIENCE CHECK SHEET	DATA CARD COMPILED
			Lindsay, 1981

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1981

APPENDIX D: POLICY FOR AREAS OF NATURAL AND SCIENTIFIC INTEREST

Areas of Natural and Scientific Interest (ANSI) are areas of land and water containing natural landscapes or features which have been identified as having values related to protection, natural heritage appreciation, scientific study or education.

ANSI s may vary in level of significance. The most significant of these may contribute to the achievement of the Ministry's protection objective.

Where ANSI s occur on public lands managed by the Ministry, it will ensure that the land uses and activities which occur, provide for the protection of identified values.

On private lands, the Ministry will, through cooperation with others, attempt to ensure that landowners are aware of significant features on their properties and seek the owners' cooperation in protecting such features. The identification of areas of natural and scientific interest on private land does not indicate an intent of the Ministry to acquire this land.

ANSIs encourage the protection of additional areas not regulated as provincial parks and provide a focus for both the public and private sectors to contribute to the protection of Ontario's natural heritage.

The policy for Areas of Natural and Scientific Interest is taken from *Backgrounder: Land Use Guidelines.* June 1983.

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Brampton	30 M/12	1979
Bolton	30 M/13	1978
Markham	30 M/14	1979
Oshawa	30 M/15	1978
Trenton	31 C/4	1979
Rice Lake	31 D/1	1978
Scugog	31 D/2	1978
Newmarket	31 D/3	1973
Alliston	31 D/4	1978
Guelph	40 P/9	1970
Orangeville	40 P/16	1976
Dundalk	41 A/1	1978
Collingwood	41 A/8	1973

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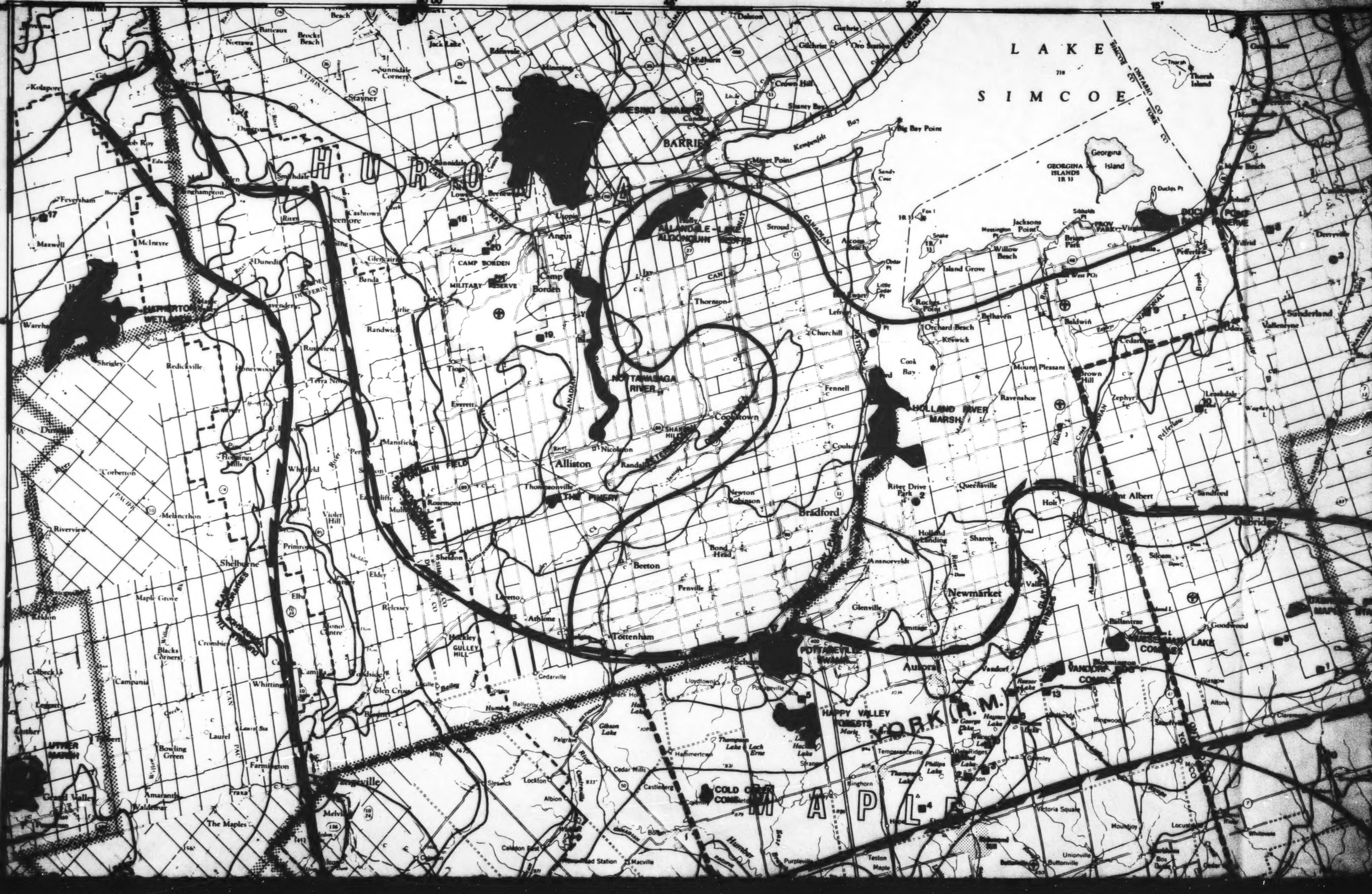
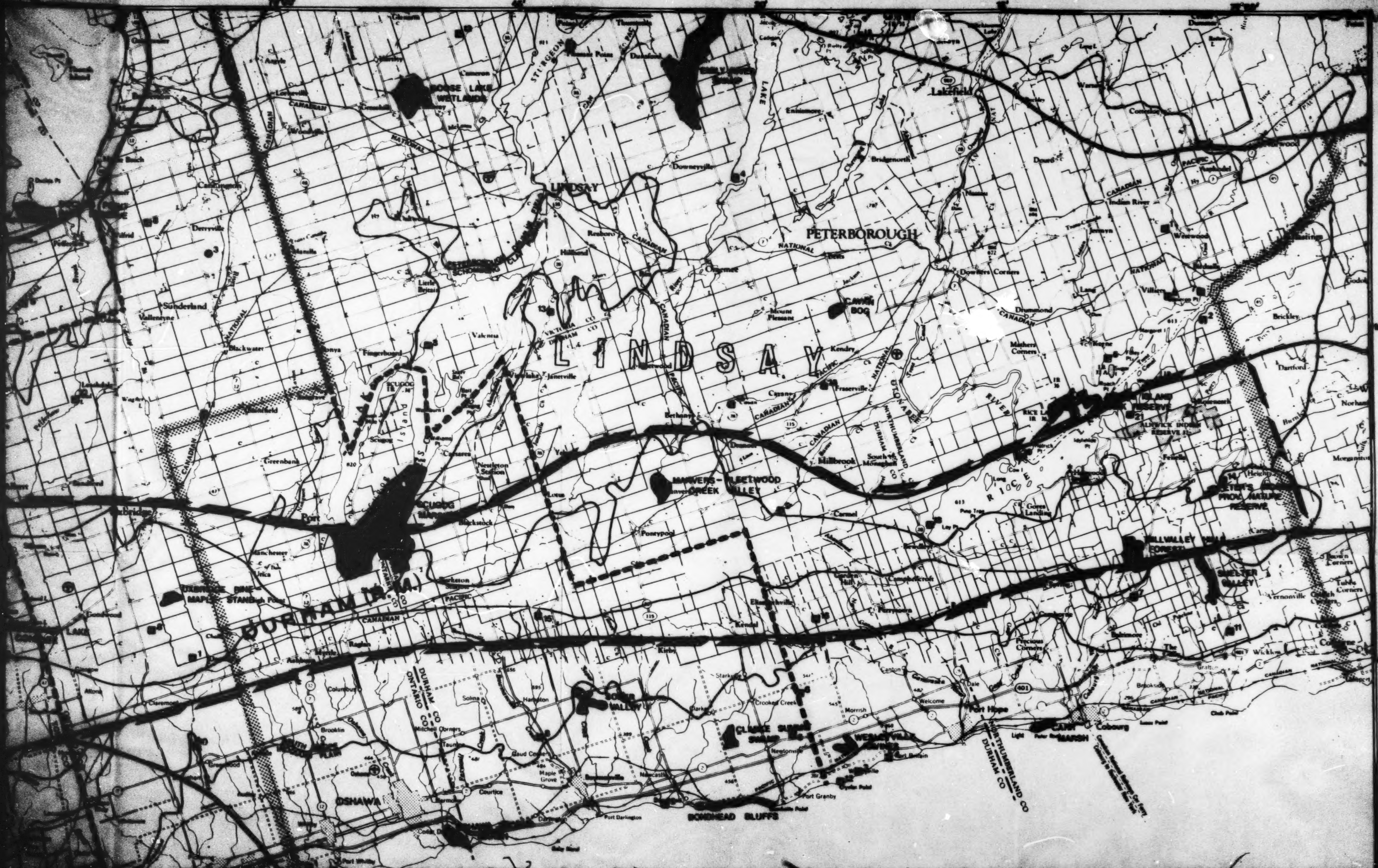
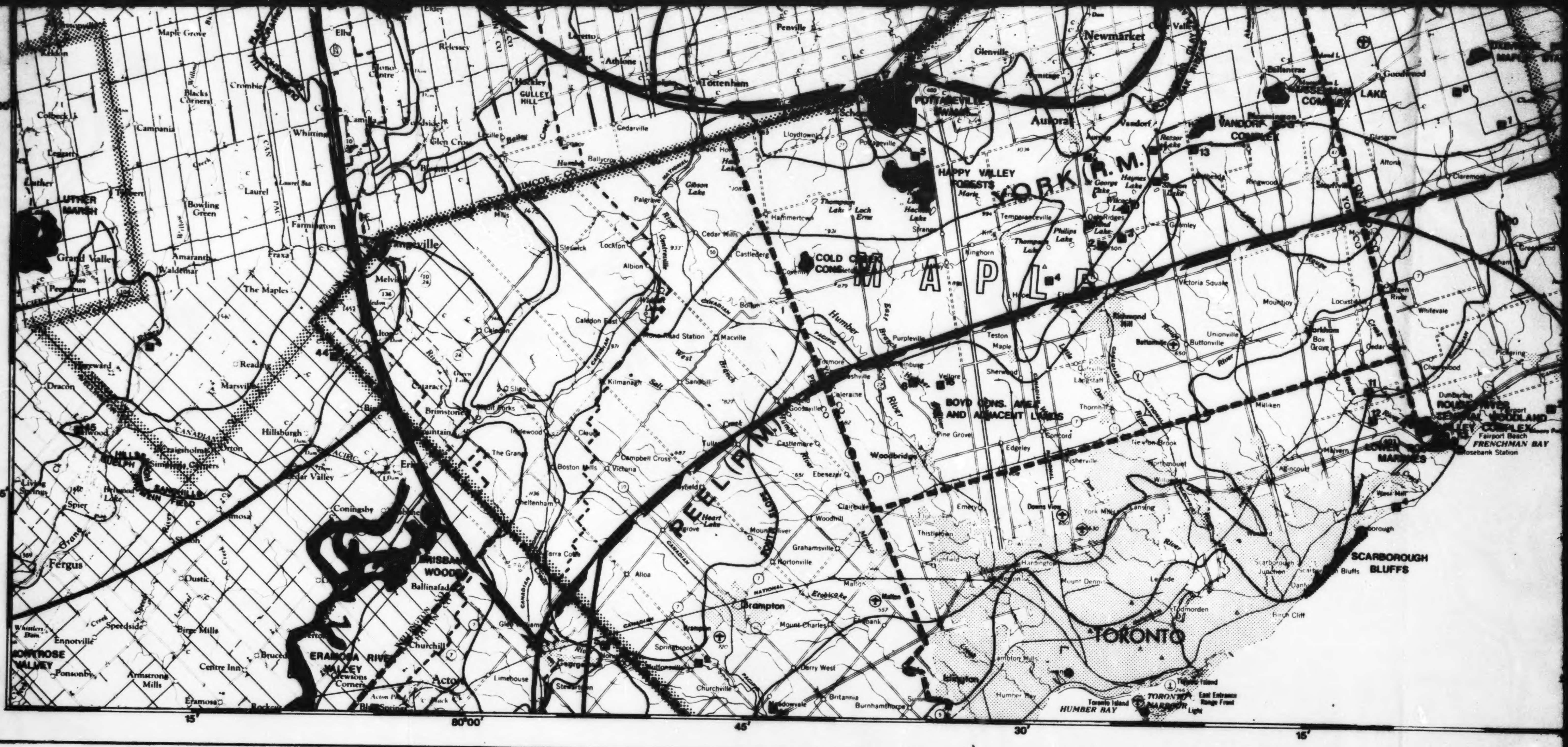

LAKE SIMCOE
HURONIA
BARRIE
Kempenfelt Bay
Big Bay Point
GEORGINA ISLANDS
Georgina Island
Thorah Island
MINESING SWAMP
ALLANDALE - LAKE ALGONQUIN BLUFFS
CAMP BORDEN MILITARY RESERVE
Camp Borden
Angus
Utopia
NOTTAWASAGA RIVER
Thornton
Churchill
Lefroy
Cook Bay
HOLLAND RIVER MARSH
Keswick
Roches Point
Orchard Beach
Belhaven
Island Grove
Willow Beach
Jacksons Point
Briars Park
Sutton
Baldwin
Sunderland
Cedarbrae
Brown Hill
Mount Pleasant
Ravenshoe
Zephyr
Queensville
River Drive Park
Holt
Mount Albert
Sandford
Uxbridge
Holland Landing
Sharon
Newmarket
Aurora
Ansnorveldt
Bradford
Bond Head
Beeton
Penville
Tottenham
Cookstown
Alliston
Nicolston
THE PINERY
Thompsonville
Newton Robinson
Glenville
OAK RIDGES
MUSSELMAN LAKE COMPLEX
VANDORF BOG COMPLEX
Ballantrae
Goodwood
POTTAGEVILLE SWAMP
Pottageville
Lloydtown
Schomberg
HAPPY VALLEY FORESTS
YORK (R.M.)
COLD CREEK CONSERVATION
Cedar Mills
Palgrave
Bolton
Caledon East
Victoria Square
Unionville
Buttonville
Maple
Teston
Kleinburg
Nobleton
Temperanceville
King
Kinghorn
Gormley
Oak Ridges
Ringwood
Stouffville
Altona
Claremont
Glasgow
SIMCOE
MAPLE
GULLEY HILL
Hockley
Loretto
Athlone
Sheldon
Rosemont
Mulmur
Mansfield
Everett
Tioga
Airlie
Randwick
Glencairn
Banda
Lisle
Creemore
Cashtown
Stayner
Sunnidale Corners
Sunnidale
New Lowell
Brentwood
Edenvale
Jack Lake
Midhurst
Crown Hill
Shanty Bay
Oro Station
Guthrie
Dalston
Gilchrist
Collingwood
Batteaux
Nottawa
Brocks Beach
Duntroon
Singhampton
Feversham
Maxwell
McIntyre
Dunedin
Lavender
Kolapore
Warsaw
MINESING WETLANDS
Shrigley
Redickville
Honeywood
Terra Nova
Rosemont
Dunhill
Corbetton
Melancthon
Riverview
Shelburne
Horning's Mills
Primrose
Violet Hill
Whitfield
Elba
Mono Centre
Relessey
Maple Grove
Crombie
Blacks Corners
Campania
Colbeck
Laurel
Bowling Green
Farmington
Amaranth
Waldemar
Grand Valley
UPPER MARSH
The Maples
Orangeville
Melville
Camilla
Whittington
Glen Cross
Fraxa
Lockton
Albion
Ballycroy
Cedarville
Macville
Purpleville
Sandy Cove
Minet Point
Stroud
Ashton
Alcona Beach
Ivy
Fennell
Coulson
Pefferlaw
Virginia
DUCLOS POINT
Duclos Pt
Sibbald Pt
Lensdale
Derryville
Vallentyne
Zephyr
Sharon Hills
Randall
Leaskdale
Mount Albert
Shaws Creek



GOOSE LAKE WETLANDS
Lakefield
LINDSAY
PETERBOROUGH
Sunderland
Little Britain
CAVAN BOG
L I N D S A Y
Mount Pleasant
Fraserville
Millbrook
MANVERS-FLEETWOOD CREEK VALLEY
SCUGOG
Port Perry
Uxbridge
DURHAM (R.M.)
Pontypool
Bethany
Janetville
Nestleton Station
Blackstock
Rice L.
RICE
ALNWICK INDIAN RESERVE
PETERS' PROV. NATURE RESERVE
SHELTER VALLEY
Campbellcroft
Perrytown
Port Hope
Cobourg
Grafton
Brooklin
OSHAWA
Courtice
Newcastle
Orono
Port Darlington
BONDHEAD BLUFFS
Port Granby
Newtonville
Kendal
Kirby
Welcome
Morrish
Columbus
Claremont
Port Whitby
DURHAM CO
NORTHUMBERLAND CO
ONTARIO CO
VICTORIA CO
CANADIAN NATIONAL
CANADIAN PACIFIC
Indian River
Warsaw
Keene
Bridgenorth
Omemee
Greenbank
Cannington
Brickley
Hastings
Dartford
Roseneath
Warkworth



Newmarket
Aurora
Tottenham
POTTAGEVILLE SWAMP
HAPPY VALLEY FORESTS
YORK (R.M.)
VANDORF BOG COMPLEX
COLD CREEK CONS. AREA
MAPLE
PEEL (R.M.)
BOYD CONS. AREA AND ADJACENT LANDS
ROUGE RIVER SEMINOLE WOODLAND VALLEY COMPLEX
FRENCHMAN BAY
LOWER ROUGE MARSHES
SCARBOROUGH BLUFFS
TORONTO
TORONTO HARBOUR
HUMBER BAY
Brampton
Woodbridge
Orangeville
Grand Valley
LUTHER MARSH
Fergus
Acton
BRISBANE WOODS
ERAMOSA RIVER VALLEY
MONTROSE VALLEY
GULLEY HILL
44°00'
45'
15'
80°00'
45'
30'
15'

CANDIDATE NATURE RESER
EAST OF THE NIAGARA ESCAR

Candidate Nature Reserv

▬ ▬ Site District boundary

— Physiographic Region boundary

■ Candidate Nature Reserve

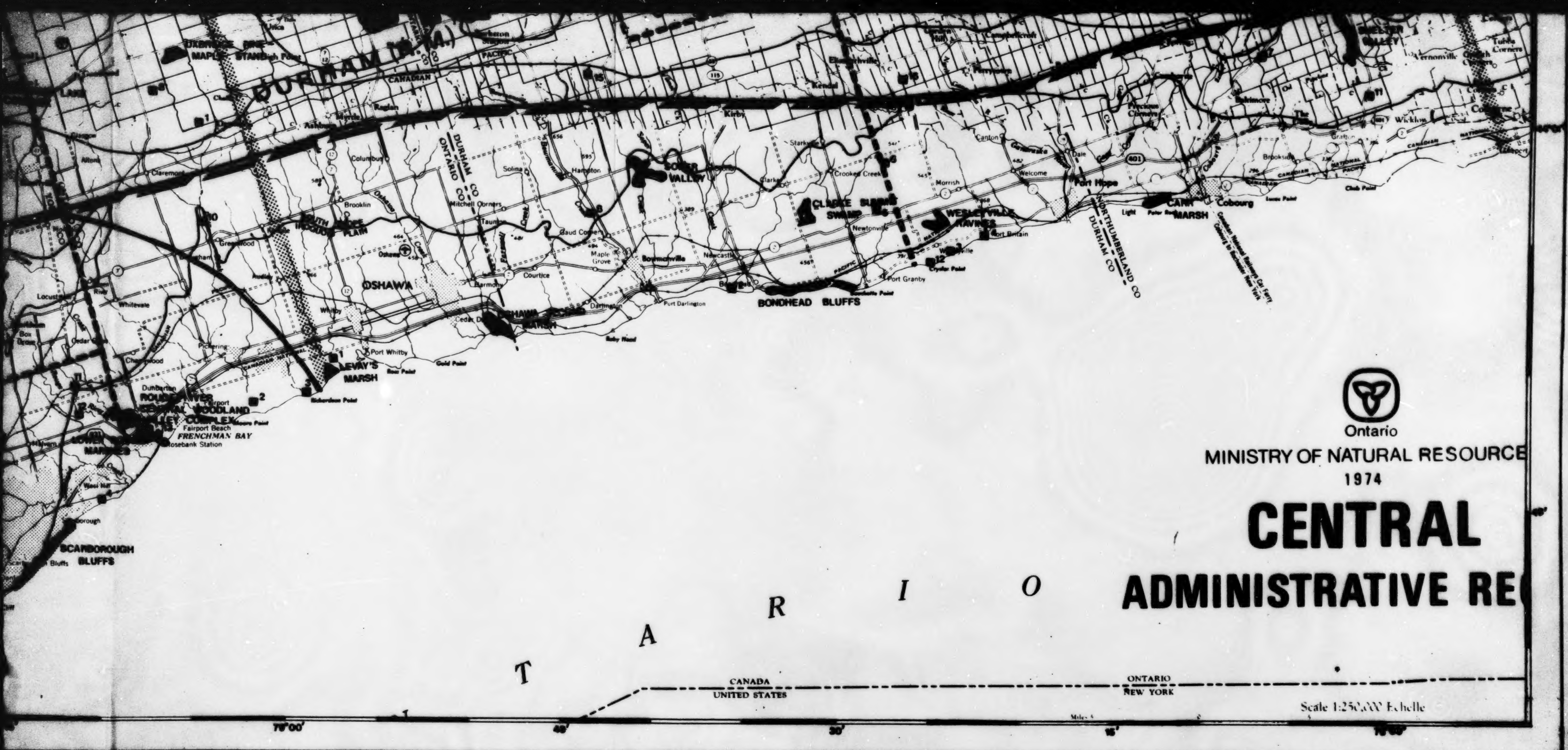
Significant Site

OAK RIDGES MORAINE

UPLAND FORESTS
- Happy Valley Forests (30M/13 115685)

UPLAND FOREST, PINE FOREST TYPE
- Uxbridge Pine-Maple Upland (31D/3

Terra Cotta
Scarborough
BLUFFS


DURHAM (R.M.)
UXBRIDGE PINE-MAPLE STAND
OSHAWA
SOPER VALLEY
CLARKE SLOPE SWAMP
WESLEYVILLE RAVINES
CAIN MARSH
BONDHEAD BLUFFS
LEVAY'S MARSH
ROUGE RIVER WOODLAND COMPLEX
FRENCHMAN BAY
SCARBOROUGH BLUFFS
Port Hope
Cobourg
Bowmanville
Newcastle
Whitby
Pickering
DURHAM CO
NORTHUMBERLAND CO
ONTARIO CO
T A R I O
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ONTARIO
NEW YORK
Scale 1:250,000 Echelle
79°00'
45'
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MINISTRY OF NATURAL RESOURCE
1974
CENTRAL
ADMINISTRATIVE RE

ATE NATURE RESERVES AND SIGNIFICANT SITES IN SITE DISTRICT 6-7, E NIAGARA ESCARPMENT PLANNING AREA, AND WITHIN CENTRAL REGION

ate Nature Reserves

MORAINE

[illegible] Forests (30M/13 115685)

[illegible] FOREST TYPE

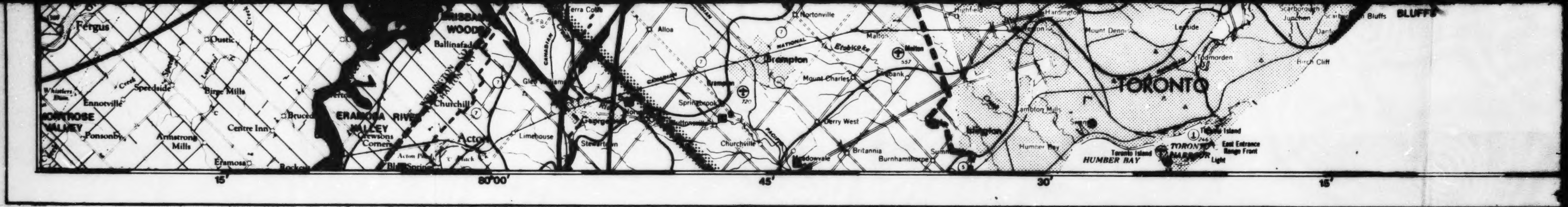
[illegible] Upland (31D/3 520790)

Significant Sites

OAK RIDGES MORAINE

UPLAND FORESTS

1. Glen Major Forests (31D/3 540740)
2. Jefferson Forest-West Section (30M/14 255645)
3. Jefferson Forest-East Section (30M/14 265650)


Fergus
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Whistlers Dam
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Birge Mills
MONTROSE VALLEY
Ponsonby
Armstrong Mills
Centre Inn
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Eramosa
Rockwood
ERAMOSA RIVER VALLEY
Crewsons Corner
Churchill
Acton
Ballinafad
Terra Cotta
Alloa
Glen Williams
Limehouse
Georgetown
Stewarttown
Nortonville
Brampton
Springbrook
Churchville
Meadowvale
Britannia
Mount Charles
Derry West
Burnhamthorpe
Malton
Islington
Lambton Mills
Humber Bay
HUMBER BAY
Mount Dennis
Leaside
Todmorden
Birch Cliff
TORONTO
Toronto Island
TORONTO HARBOUR
East Entrance Range Front
Light
Scarborough Junction
Scarborough Bluffs
BLUFFS
15'
80°00'
45'
30'
15'

CANDIDATE NATURE RESE
EAST OF THE NIAGARA ESCA

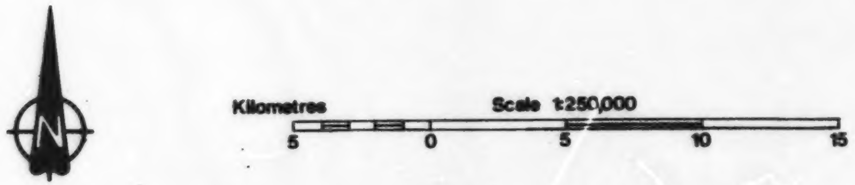
Candidate Nature Reser

▬ ▬ Site District boundary
—— Physiographic Region boundary
█ Candidate Nature Reserve
■ Significant Site
------ Niagara Escarpment Planning Area

Drawn by P. Terpstra

Date February 1982

The name "Candidate Nature Reserve" was changed to "Area of Natural and Scientific Interest (ANSI)" in 1983.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Sources of Information

Physiographic region boundaries used on this map follow those of Chapman and Putnam, 1966. Site District boundaries presented here were derived from an unpublished small scale map provided by Forest Site Research. Boundaries were extrapolated and are thus only approximations of Site District boundaries. Please refer to the Site District 6-7 report (Areas of Natural and Scientific Interest in Site District 6-7: A Review and Assessment of Significant Natural Areas in Site District 6-7 by K. M. Lindsay, 1984) for further information.

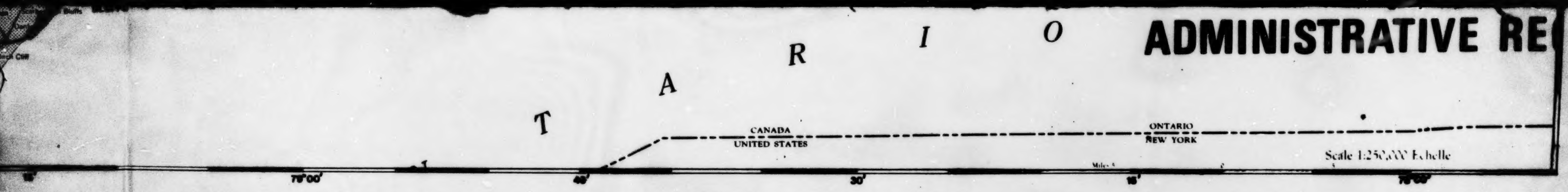
OAK RIDGES MORAINE
  UPLAND FORESTS
    - **Happy Valley Forests (30M/13 115685)**
  UPLAND FOREST, PINE FOREST TYPE
    - **Uxbridge Pine-Maple Upland (31D/3 5**
  UPLAND FOREST, OAK TYPE
    - **Millvalley Hills Forest (31D/1 3108**
  KETTLE BOGS
    - **Vandorf Bog Complex (31D/3 325735)**
    - **Musselman Lake Complex (31D/3 37575**
  RIVER VALLEYS
    - **Manvers-Fleetwood Creek Valley (31D/**

SOUTH SLOPE
  RIVER VALLEYS, SWAMPS
    - Cold Creek Conservation Area (30M/1

SCHOMBERG CLAY PLAINS
  WETLAND COMPLEXES
    - **Pottageville Swamp (31D/4 100740)**
    - **Scugog Marsh (Osler Tract) (31D/2 6**

Provincial Park Holdings
Nature Reserve Potent

- **Peter's Woods Provincial Nature Reserve (31**



DATE NATURE RESERVES AND SIGNIFICANT SITES IN SITE DISTRICT 6-7, THE NIAGARA ESCARPMENT PLANNING AREA, AND WITHIN CENTRAL REGION

ndidate Nature Reserves

IDGES MORAINE
ND FORESTS
Happy Valley Forests (30M/13 115685)
ND FOREST, PINE FOREST TYPE
Uxbridge Pine-Maple Upland (31D/3 520790)
ND FOREST, OAK TYPE
Millvalley Hills Forest (31D/1 310840)
LE BOGS
Vandorf Bog Complex (31D/3 325735)
Musselman Lake Complex (31D/3 375755)
R VALLEYS
Manvers-Fleetwood Creek Valley (31D/2 915890)

SLOPE
R VALLEYS, SWAMPS
Cold Creek Conservation Area (30M/13 040625)

BERG CLAY PLAINS
ND COMPLEXES
Pottageville Swamp (31D/4 100740)
Scugog Marsh (Osler Tract) (31D/2 670830)

incial Park Holdings with ture Reserve Potential

ands Provincial Nature Reserve (31D/1 370900)

Significant Sites

OAK RIDGES MORAINE
UPLAND FORESTS
1. Glen Major Forests (31D/3 540740)
2. Jefferson Forest-West Section (30M/14 255645)
3. Jefferson Forest-East Section (30M/14 265650)
4. Maple Uplands and Kettle Wetlands (30M/14 210620)
5. Pottageville Southeast Upland (30M/13 115705)
6. Simeon Lake North (30M/14 295695)
7. White Rose West Forest (30M/14 250700)
8. Goodwood Southeast Upland (31D/3 505760)

UPLAND FOREST, OAK TYPE
9. Ganaraska Forest, west of Carmel (31D/1 005865)

KETTLE BOGS
10. Wilcox Lake Wetlands and Uplands (30M/14 270670)
11. White Rose Bog (30M/14 285712)
12. Bond Lake Bog (30M/14 244659)
13. Lake 1 km east of Preston Lake (30M/14 316716)

RIVER VALLEYS
14. Burnley Creek (31D/1 380910)

SOUTH SLOPE
RIVER VALLEYS, SWAMPS
15. Tyrone River Valley (31D/2 820780)
16. Elizabethville Swamp (31D/1 045785)

SCHOMBERG CLAY PLAINS
WETLAND COMPLEXES
17. Pottageville Swamp North (31D/4 090755)

PETERBOROUGH DRUMLIN FIELDS
RICE LAKE MARSHES
18. Sand Point Marsh (31D/1 140865)
19. Otonabee River Delta Marsh (31D/1 210925)
20. Harwood Marsh (31D/1 265910)
21. Dunnette Landing Marsh (31D/1 300960)